Registered at the G.P.O., Sydney, for Transmission by Post as a Newspaper. Published Weekly.

THE

MEDICAL JOURNAL OF AUSTRALIA

GENERAL LIBRARY SEP 5 1918 UNIV. MICH.

(With which "The Australasian Medical Gazette," and "The Australian Medical Journal" are incorporated.)

The Journal of the Australian Branches of the British Medical Association.

VOL. II.—5TH YEAR—NO. 6. SYDNEY: SATURDAY, AUGUST 10, 1918. PRICE 6D.

Allen & Hanburys Ltd.

MAKERS OF

SURGICAL INSTRUMENTS

SUPPLIERS TO

H.M. ARMY and H.M. NAVY

ALL INSTRUMENTS ARE OF THE

BEST BRITISH WORKMANSHIP

AUSTRALASIAN BRANCH:

B.M.A. BUILDING, ELIZABETH STREET, SYDNEY

The Fine Arts at Anthony Horderns'

The FINE ART GALLERY at ANTHONY HORDERNS' NEW PALACE EMPORIUM has become the **Mecca of Connoisseurs** and all who have an **Innate Love of the Beautiful.** In this New Section of our Enterprise an earnest **Endeavour** has been made to display Unique **Collections in Varied Branches of Art,** representing **Selections** from the **Choicest Modern Productions** as well as the **Antiques,** constituting a **Permanent Exhibition** of—

Genuine Bronzes, Marble Statuary, Wood and Ivory Carvings, Period Furniture, Oriental Carpets, Eastern Curios, Hand-cut Glass Etchings, Engravings, Hand wrought Metals, Exquisite Enamels, Oil Paintings, Water-colour Drawings, many pieces of irreproachable Pottery, and Porcelain, Royal Doulton, Royal Worcester, Royal Crown Derby, Coalport, Copeland, Minton, Wedgwood, Belleck, Royal Copenhagen, Lancastrian, Bernard Moore, Gouda, Old Celadon, Chinese and Japanese Ware.

INSPECTION IS INVITED AND NO ONE IS IMPORTUNED TO PURCHASE

Anthony Horderns & Sons Ltd
NEW PALACE EMPORIUM
BROCKFIELD HILL SYDNEY

Infant Mortality——Nothing per Thousand!

There is a commune in France where for ten years no baby died.

According to Dr. C. W. Saleby, infant mortality ought to be nothing per thousand!

In the Commonwealth during the ten years ending 1915 the deaths of children under one year TOTALLED 98,770.

More than half these deaths are believed to be due to preventible causes.
And many a valuable little life would have been saved had it been fed on GLAXO.
GLAXO is simply the solids of Milk—pure germ-free milk with extra cream added.
GLAXO comes in parchment bags, packed in air-tight tins; consequently, the Glaxo-fed baby gets all the benefits of a pure, clean milk free from contamination and the risk of milk-borne diseases.

The GLAXO process breaks up the curd of the cow's milk, so that a baby can easily and quickly obtain nourishment from every drop, whilst in ordinary cow's milk this curd forms a dense, leathery mass—a frequent cause of indigestion and flatulence.

GLAXO IS PREPARED SIMPLY BY THE ADDITION OF HOT WATER.

"BUILDS BONNIE BABIES"

Glaxo

"BUILDS BONNIE BABIES"

Samples, together with Medical and Analytical reports, sent free on application to—

GLAXO ..... 79-81 Pitt Street, Sydney
GLAXO ..... Spencer Street, Melbourne
GLAXO ..... 20 Queen Street, Perth
GLAXO ..... Chesser Street, Adelaide, S.A.
GLAXO ..... Queen Street, Brisbane, Q.
GLAXO ..... Palmerston North, New Zealand

THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. II.—5TH YEAR. SYDNEY: SATURDAY, AUGUST 10, 1918. No. 6.

A MALARIAL SURVEY OF THE TOWNSHIP OF CAIRNS.[1]

By **A. Breinl, M.D.,**
and
F. H. Taylor, F.E.S.,
From the Australian Institute of Tropical Medicine, Townsville.

It is well recognized that malarial fever has existed in Cairns in an endemic form for some years, but no definite information had been available as to the extent of its occurrence. A malarial survey of this township was undertaken to ascertain the prevalence and the source of the infection and to advise means for prevention.

It soon became apparent that conditions in Cairns differed, in a great many respects, from those prevailing in the majority of other malaria-infested regions. In most parts of the tropics where malaria has been endemic for generations, and where there exists a sedentary native population, the majority of the inhabitants become infected in early childhood, and acquire after years of suffering an active immunity, which is invariably preceeded by a state of tolerance, extending over many years. In endemic areas native children become infected soon after they are born; a number of them succumb to the infection; others suffer acutely at first, but soon they become accustomed to the presence of the parasites, and there exists for a time a state in which the organism and parasites are so well balanced that under normal conditions the parasites are unable to multiply, but at the same time the natural resisting power of the patient is just insufficient to eradicate completely the small number of parasites sheltering in the internal organs, such as spleen and bone marrow; there exists therefore a state of tolerance. Should, however, the balance be disturbed, should the general resistance of the organism be suddenly lowered, as for example by exposure to sudden cold weather, by extra exertion, or by intercurrent disease, the parasites may gain the ascendency; they are then able to multiply, and give rise to a new attack. Everybody who has travelled with natives, knows only too well that after a cold snap, and especially after prolonged exposure to cold rains, a number of apparently healthy natives are attacked by fever and ague.

Microscopical examination of the blood of children of a native village, where malaria is endemic, reveals, if performed carefully, a small number of parasites in a certain number of the blood specimens collected, mostly gametes or sexual forms. These parasites, when taken up with the blood by certain mosquitoes, which can act as carriers, multiply and allow the propagation of the infection to the non-immune population, newcomers and young children.

For this reason malaria is not considered a dangerous disease in a native community; the adults, born and reared in the endemic zone, hardly ever suffer, and the value of a child's life is, as a rule, not very highly estimated.

It is therefore only in the blood specimens collected from young native children living in an endemic area, that one can hope to encounter parasites; it is an event of rare occurrence to find parasites in the blood of an adult native.

In Cairns malaria has spread only within comparatively recent times, recent enough to prevent the formation of an immune adult population, and therefore one would expect *a priori* to find the young and adult population of this town equally affected.

Principles of a Malarial Survey.

A malarial survey must be carried out in two directions, since two factors are essential for the spread of the disease, on the one hand the patient harbouring the parasites in the blood, and on the other hand the parasite-carrying mosquito, the intermediary host. It is, therefore, necessary to ascertain in the first instance the number of inhabitants whose blood contains parasites in sufficient number to be detected on microscopic examination, and, secondly, to locate the breeding places of the malaria-carrying mosquito, by discovering the larvæ, pupæ, and eggs in collections of water.

Malaria-carrying mosquitoes belong in the light of our present knowledge to one genus only, namely to the Anopheles. The finding of the adult mosquito usually presents difficulties, as the anophelines are comparatively insignificant and shy mosquitoes, which rest in sheltered positions during the hours of daylight, especially on the under surface of leaves, in grass and on tree trunks. They leave their shelter, as a rule, just before sunset, and again just about sunrise, they develope for a short time their greatest activity, and become torpid again as soon as the daylight has vanished or the sun has risen. Anybody who has lived in tropical regions where anophelines are numerous, remembers only too well the activity of these mosquitoes just before sundown, when those parts of one's body, which are protected from light, such as ankles, calves of the legs and thighs, are the happy hunting ground of the blood-thirsty little beings, which fly away as soon as disturbed by any movement or by the direct rays of a lamp, but only wait in the near neighbourhood for a suitable opportunity again to attack their unfortunate prey.

It is generally understood that anophelines require especial conditions for their propagation, and their peculiar breeding habits afford an explanation for the frequent observation that during the early settlement of a recently opened up part of the tropics, malaria may be prevalent, and may become less and less marked as the township becomes more extended. Under especial conditions, however, such as are prevalent in Cairns, the opposite may take place when malaria, unless checked by preventitive measures, may spread with the extension of the township, on account of conditions favourable for the propagation of the mosquito.

[1] This paper constitutes the beginning of a systematic survey of endemic malarial zones in Northern Australia.

Mosquitoes may be divided into two large categories, namely, town and bush dwellers. Town dwellers are those which are content to stay in houses and rooms, and lay their eggs in water tanks and other water-containing receptacles, so often found near habitations. An example is the *Stegomyia fasciata*, the transmitter of yellow fever, which clings to man and his progress. Bush dwellers visit buildings at their meal time only, and retire again after having taken their fill, to the bush, where they lay their eggs in natural water holes, and other collections of water, such as hoof marks in swamps, in old tree trunks, or in water collected between the branches and trunk of a tree, etc. The anophelines are typical bush dwellers, and hardly ever condescend to lay their eggs in artificial water containers.

Nyssorrhynchus annulipes which, judged by its distribution in relation to malarial infested regions in Northern Australia, most probably acts as malarial carrier, has another peculiarity. The ova and larvæ of this mosquito are never found in deep water, but only occur in shallow, still waters, such as are found on the edges of swamps, or in small pools on the surface of rocks, which are left when the water is drying up or receding. It is furthermore of importance to point out that *Nyssorrhynchus annulipes* does not refrain from propagating its species in brackish or even in salt water, although they prefer fresh water for oviposition. They lay their eggs also in muddy waters, and pupæ have often been encountered in muddy pools. Other species of anopheles have, however, different breeding habits. *Anopheles maculatus*, for example, which acts as malaria carrier in the hilly regions of Malaya, breeds in clear springs and crystal brooks, and the larvæ can, in spite of strong currents, hang on to rocks and pebbles in a stream, where not a blade of grass or other aquatic vegetation is to be found. (1)

Malarial fever is caused by the presence in the blood stream and organs of the sufferer of one of the species of the malarial parasite. At certain stages of the disease the parasite is present in the peripheral blood, and can readily be detected in fresh and stained blood smears on microscopical examination. The detection of the parasite in a blood specimen is, however, not always an easy matter, and the ease with which it can be accomplished, varies according to the type of the parasite, and the duration of the infection, and is made more difficult by erratic administration of small doses of quinine.

During the early stages of the simple tertian infection, caused by *Plasmodium vivax*, at the time of the second or even the third rigor, the number of parasites is, as a rule, so small that only a prolonged and a painstaking examination of several blood smears may reveal their presence; during the interval between the attacks, even a prolonged and lengthly search usually proves fruitless. As the infection progresses the number of parasites in the blood stream increases with each attack, and after a varying time certain forms, the sexual forms or gametes, persist in the blood, even during the feverless interval, so that in an untreated case after several attacks the finding of parasites does not, as a rule, offer much difficulty, even in blood specimens taken during the feverless interval.

In malignant tertian infection, due to *Plasmodium falciparum*, the asexual development takes place in the internal organs, such as spleen and bone marrow; the sexual forms, the crescents, persist in the peripheral blood in smaller or larger numbers according to the duration of the infection, and a microscopical diagnosis, even in a comparatively early stage is possible in blood specimens, taken irrespectively of the clinical manifestations. It is, however, a common experience that the number of crescents present in the blood stream is not in direct proportion to the severity of the clinical symptoms. In many instances, especially in the blood of the patients in a chronic stage of the disease, who have been treated with quinine intermittently, and in insufficient doses, the malarial cachexia produced by the infection may be well pronounced, but at the same time the number of parasites in the peripheral blood may be very small indeed.

This short discourse on the vicissitudes of the malarial parasite in general should reveal the fact that a careful but unsuccessful search for the parasites in a blood specimen taken at hazard is not at all conclusive of their absence, neither is an unsuccessful repeated examination performed at comparatively short intervals.

A well pronounced enlargement of the spleen in connexion with a history of fever is, however, even when parasites cannot be found in the blood, pathognomonic of malarial fever. The enlargement of the spleen is not always marked. A spasmodic and insufficient treatment by quinine, sufficient to prevent relapses for a few weeks, is apt to prevent an enlargement of the spleen, and in a community such as that of Cairns many patients are of this type.

Ross (2), in his discussion on the importance of enlargement of the spleen for estimating the amount of the disease in a locality, points out:—

> That even small and irregularly administered doses of quinine tend to check the increase of the spleen very much. Thus in untreated native children one often finds the organ an inch or so below the ribs after a few attacks, while there is frequently no enlargement in Europeans, even after many attacks. In sailors who have reached Liverpool after weeks or months of fever on the homeward journey from West Africa, we find, as a rule, scarcely any enlargement.

Of other symptoms, the presence of a mononuclear leucocytosis is considered an indication of latent malaria. Differential counts are, however, costly in time and only a well pronounced change in this direction is indicative of latent malaria.

Ross (2), the discoverer of the mosquito transmission of malaria, was the first to apply mathematical principles to malaria researches. He pointed out that malaria can only occur in a locality where the following conditions exist:—

(1) That a person whose blood contains a sufficient number of gametids (sexual forms) is living in or near the locality.
(2) That an anopheline capable of carrying the parasites sucks enough of that person's blood.
(3) That this anopheline lives for a week or more afterwards, under suitable conditions—long enough to allow the parasite to mature in it.
(4) That it next succeeds in biting another

person who is not immune against the disease or is not protected by quinine, and

(5) That few or no new infections will occur in a community, unless the persons with gametids in their blood and the carrying anophelines are sufficiently numerous.

He points out further that it requires a great number of malaria-carrying mosquitoes, and the number of infected persons must be fairly large, in order to allow malaria to spread, and adds that malaria cannot exist in a community unless the anophelines are so numerous that the number of new infections compensates for the number of recoveries. Ross's calculation proved that, provided precautionary measures are taken, it is not only possible but it is certain that malaria can be exterminated.

In order to advise ways and means for the eradication of malaria in Cairns, it was necessary to ascertain the breeding places of anophelines, and at the same time to ascertain the number of persons harbouring malarial parasites in their blood, who act as reservoirs for the further spread of the infection.

Mosquito Survey.

The township of Cairns is situated in the very low lying delta formed by the Cairns inlet, which extends for some distance inland with several ramifications, with extensive mangrove flats between the creeks. The country gradually ascends to a background formed by high hills which are densely covered by scrub, surrounding the town on three sides. Cairns, like other parts of North Queensland, has a dry and wet season; the rainfall is heavier during the wet season; the township is situated in the wet belt, and, as a rule, slight rains occur throughout the so-called dry season. The average rainfall for the last thirty years is 229.8 cm. (90.49 inches), in comparison with 125.2 cm. (49.28 inches) for Townsville.

The township of Cairns is built mainly on reclaimed land. The central part of the town is high and dry, and most of the main streets run parallel with the seashore and are intersected by cross streets. Most of the main streets, even within the confines of the town, run into swampy areas of varying extent, and further out towards the hills the town is completely surrounded by swamps, which hardly ever dry up completely and are covered by dense vegetation.

There are a number of main areas of swamps in and around Cairns.

The swamp situated between Abbott and Lake Streets is not of an extensive nature. The water is clear and fresh, varying from a few centimetres (a few inches) to about 60 centimetres (2 feet) in depth, the average being about 30 centimetres (12 inches). It is about 20 metres (66 feet) wide, wind swept in parts, and has a fairly dense growth of scrub; a few tall trees grow on its edges, as well as in the shallow water along the whole length of the swamp. In a few places there are houses facing Abbott Street, the back yards of which adjoin the edge of the swamp, and form in many instances part of it. Several large dead trees lies across the water as well as a quantity of fallen scrub; dead leaves cover the surface of the water along the edges as well as in the centre, where the tree trunks keep the flotage away from the bank.

There has been an attempt to fill in the swamp a short distance from its southern end, and a bridge of dry land divides it into two portions. The larger portion running in a nothern direction is a clear sheet of water; in the smaller, the southern portion, the surface is more or less covered by vegetation, consisting of water-lilies, reeds and other aquatic plants. The light scrub on the edges and the fallen trees in conjunction with the vegetation, cause an accumulation of flotage, so that the edges, well sheltered from the wind, furnish ideal breeding grounds, and contain a great number of mosquito larvæ.

Two anopheline mosquitoes were found breeding in the swamp, *Nyssorrhynchus annulipes* in abundance over its entire length, whilst larvæ of *Myzorhynchus bancrofti* were only rarely encountered.

This swamp continues beyond the houses to the town reserve, and forms a horse shoe shaped bend, which is separated from the seashore by a sand ridge. Occasionally, when the tides are exceptionally high, the sea breaks through this sand ridge, and the most northerly end of the swamp is then covered by salt water. Only a few larvæ of *Nyssorrhynchus annulipes* were in the pools; small numbers of fish, dragon-fly larvæ, and water-bugs were found in this swamp, which are commonly considered enemies of mosquito larvæ. Adult *Nyssorrhynchus annulipes* were found in the neighbourhood of the swamp.

The swamp between Sachs and Sheridan Streets commences immediately behind the General Hospital, and extends in a northerly direction parallel with the Lake Street swamp, and is about a chain wide. The first section is partially filled in by old tins and other rubbish, but is otherwise overgrown with water hyacinths. Further on it changes into moderately dense scrub, with an undergrowth of clumps of reeds, with banks on both sides up to two metres (six feet) in height. The water is fresh, and varies from a few centimetres to 100 of 120 cm. (3 or 4 feet) in depth. There is a fairly large quantity of flotage along the edges and round the clumps of reeds, mainly consisting of dead leaves. Towards its end it gradually merges into a salt water marsh, formed around a tidal creek; numerous pot-holes and small pools are found here in the soft mud along its banks. The undergrowth is gradually replaced by large trees in this area and finally gives place to thickly overgrown mangrove flats. The larvæ of the anophelines, *N. annulipes* and *M. bancrofti* were found in comparatively small numbers, *M. bancrofti* predominating.

Small fish were fairly numerous throughout the length of the swamp, whilst dragon-fly larvæ, waterboatmen, etc., were comparatively scarce.

Lily Creek consists of a series of swamps and waterholes, situated on the south-western side of the railway line, extending from one end of the township to the other, and beyond. Its beginning is a treeless swamp, overgrown with water hyacinths and with scattered pot-holes on the edges. In its middle portion it is covered with tall trees, and a fairly dense undergrowth. There is also a borrow pit in this portion between the swamp and the railway embankment completely overgrown with grass and containing about a foot of water. Towards its northerly end the

swampy area extends in width considerably, and is densely timbered and covered with heavy undergrowth. The banks of the swamp are, generally speaking, low. The water is fresh and clear.

At about the same level as the Sach Street swamp this swamp continues into a brackish mangrove flat, formed by another branch of the salt-water creek referred to previously.

Larvæ of *N. annulipes* and *M. bancrofti* were not numerous in any portion of this swamp, but were fairly evenly distributed throughout. Larvæ of *M. bancrofti* predominated in the densely overgrown portion, whereas those of *N. annulipes* were more numerous in those parts adjoining habitations.

Culicine larvæ, pupæ, and egg rafts occurred throughout the entire length of the swamp, and were on the whole more prevalent than the anopheline larvæ. Small fish and dragon-fly larvæ were fairly well distributed throughout the swamp, the former being very common in the brackish areas toward the mangroves.

There are two separate swamps in the neighbourhood of Draper Street. The first swamp adjoins the south-western side of Draper Street, and is formed by a series of water-holes overgrown with water hyacinths and reeds. It becomes broader and its overflow is drained by means of a buried concrete pipe across the railway line into Alligator Creek. Closely adjoining, but separated by a low ridge there is a second more extensive swampy area, which extends across Draper Street. In parts it is heavily overgrown with water hyacinths and other vegetation, and in other parts forms an exposed sheet of water. There is a great number of houses in the near neighbourhood of these swamps.

Larvæ of *N. annulipes* and *M. bancrofti* in varying stages of development were found in small numbers in these swamps, but no adult mosquitoes were found in these areas.

The outskirts of the town are formed by undulating country, ridges running east and west, approximately parallel to the main streets, intersected by extensive swampy areas. The few houses are built on the sand ridges and are skirted by swamps of varying extent. The swamps are mostly heavily timbered by mangrove and gum trees, with a dense undergrowth of scrub. Here and there are partially cleared spaces covered by sheets of water. *N. annulipes* and *M. bancrofti* larvæ were found in varying numbers in most of the fresh water swamps, and in many instances water collected in the hoof marks of cattle and horses in the mud contained a varying number of larvæ. There are extensive tidal mangrove swamps running in from the seashore, watered by tidal creeks.

Malaria in the Community.

In order to ascertain as far as practicable the number of persons harbouring malarial parasites, blood specimens were collected from a number of residents. During the campaign 657 samples of blood were stained and subjected to microscopical examination,* out of these 88 contained malarial parasites in varying numbers.

There exist in Cairns two types of malarial parasites, *Plasmodium vivax,* the parasite of simple tertain fever, and *Plasmodium falciparum,* the parasite of the malignant tertain fever, so called on account of the greater severity of the clinical symptoms which this type of parasite produces.

Its gametocytes or sexual forms, the crescent forms, are not destroyed by the administration of even large doses of quinine, and only disappear after having completed their natural span of life, which comprises about twenty days.

Forty-five blood smears contained simple tertain parasites and forty-three smears the parasites of malignant tertain fever, which figures indicate that both types are fairly evenly distributed.

According to these results 13.5% of the inhabitants examined, harboured at the time of examination malarial parasites in their blood, and acted as distributing centres of the infection. In addition about twenty specimens, although not showing parasites, revealed blood conditions typical of a chronic malarial infection, namely, large mononuclear leucocytosis and degeneration of the red blood corpuscles, thus indicating that the persons, from whom the specimens were obtained had suffered, from fever within recent times. The parasites of quartan malarial fever were not encountered.

It is difficult to draw from this figure a definite conclusion as to the actual number of malarial cases which occur in the township of Cairns in the course of one year. A scanty number of parasites in the peripheral blood may easily be overlooked, and the percentage of positive results is in direct proportion to the time and care spent over the examination. Furthermore, in malarial fever attacks and feverless intervals follow each other in close succession, and the parasites, present in great number in the peripheral blood during the attack, lodge during the interval in the internal organs, and may be so scanty in the blood during the feverless intervals that they escape detection. It is only after a number of attacks uninfluenced by quinine, that a detectable number of gametocytes persist in the peripheral circulation, even during the afebrile stage.

On the other hand it must be taken into consideration that the collecting of blood samples was on the whole confined to parts of the town, where, according to the experience of the local practitioners, malarial fever had been prevalent, and only the blood of persons, who, on enquiry, professed to have had fever recently, or in whom a pronounced anæmia was present, was examined microscopically.

The admission rate of fever to the Hospital does not afford conclusive evidence as to the actual number of fresh infection occurring in the township. A certain percentage must be considered relapse cases, who leave the hospital too soon or do not continue the prolonged treatment necessary, and it is beyond doubt that only a small percentage of the patients—the most severe cases only—seek and obtain admission and treatment at the hospital.

Taking all circumstances into consideration, it is clear that the finding of parasites in 13.5% of the blood samples, represents a fairly high infection rate, and indicates beyond doubt that malarial fever is a widespread disease in Cairns and forms a serious handicap to the future development of the town.

* The Senior Laboratory Assistant, Mr. J. W. Fielding, ably assisted in the examination of the blood smears.

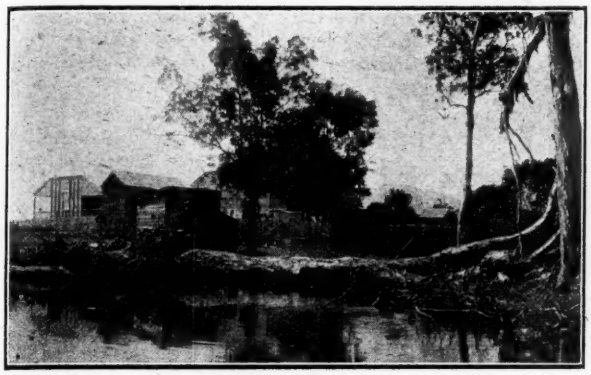


Figure I.
Lake Street Swamp. Note the backyard of houses adjoining the swamp. Dead tree lying across swamp.

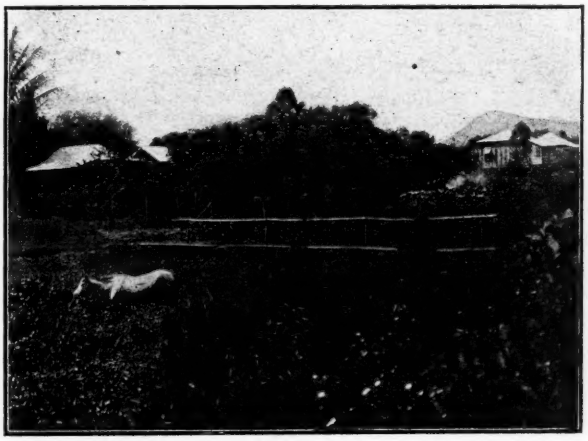


Figure II.
Sachs Street Swamp. The water is up to 60 cm. in depth. The surface is overgrown with water hyacinths and clumps of reeds. Shallow pools of water are found everywhere, containing numerous anopheline larvæ.

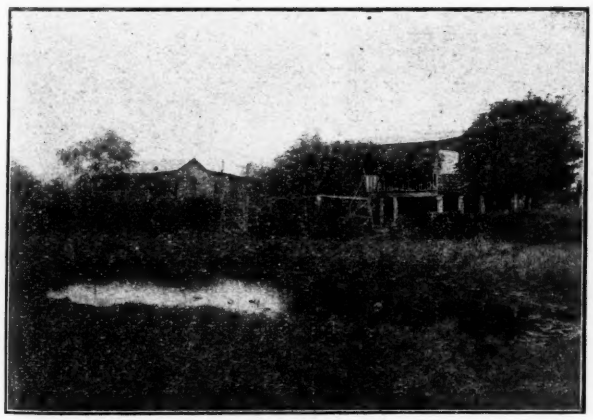


Figure III.
Draper Street Swamp. Note the close proximity of the houses to the water collection, and the flotage on the edge, forming a favourable breeding ground for anophelines.

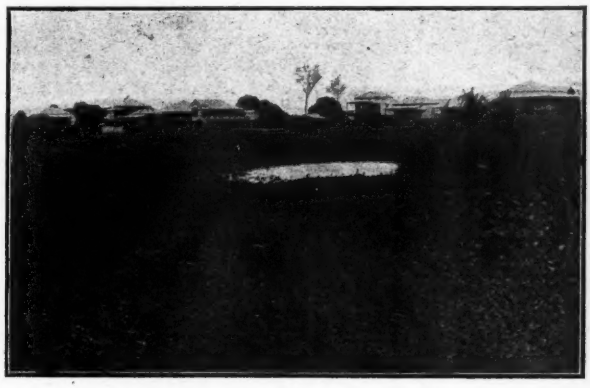
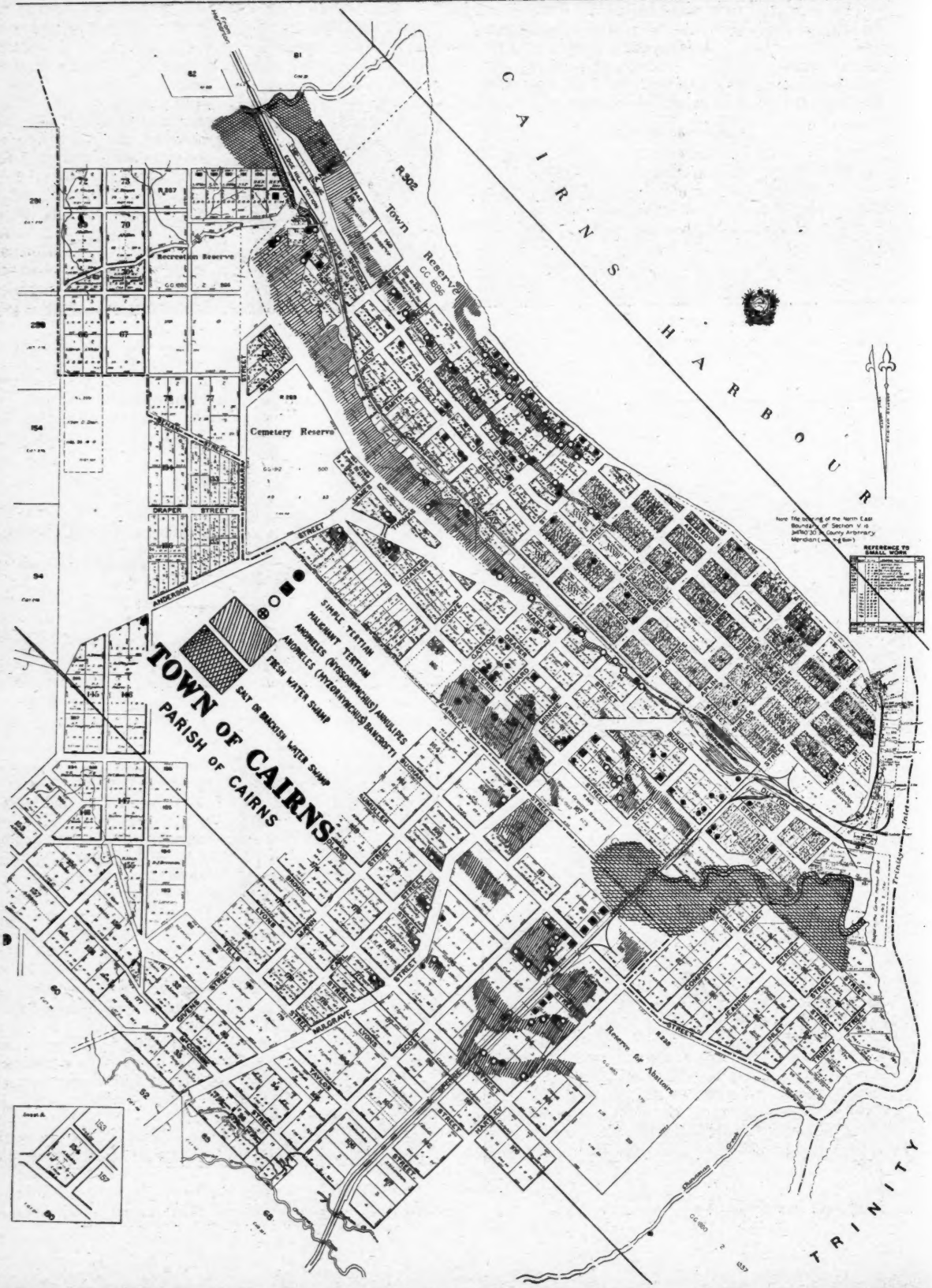


Figure IV.
Houses situated on edge of Draper Street Swamp.

Figure V.
Corner of Mulgrave Road and Martyn Street. Note the pandanus trees on the edge of the water. Part of the swamp is overgrown with water hyacinths.

Figure VI.
Swamp alongside Mulgrave Road, on the outskirts of the town. Note the depressions in the mud, due to hoofmarks of cattle and horses, the water in which contained numerous anopheline larvæ.


CAIRNS HARBOUR
TOWN OF CAIRNS
PARISH OF CAIRNS
SIMPLE TERTIAN
MALIGNANT TERTIAN
ANOPHELES (MYZORHYNCHUS) ANNULIPES
ANOPHELES (MYZORHYNCHUS) BANCROFTI
FRESH WATER SWAMP
SALT OR BRACKISH WATER SWAMP
Recreation Reserve
Cemetery Reserve
Reserve for Aborigines
R.302
Town Reserve
TRINITY
REFERENCE TO SMALL WORKS

The accompanying map shows the distribution of fever cases throughout the town and the occurrence of anopheline larvæ. It is apparent at a glance that there exists a close relationship between the anopheline breeding swamps and the houses where blood examination revealed the presence of fever cases.

Prevention of Malaria.

Malaria is an infectious disease, which readily yields to carefully designed and rigorously carried out sanitary measures, the cost of which is small in comparison with the havoc wrought by the disease.

The knowledge that the malarial parasite is carried from the infected to the healthy by a certain species of mosquito only, and the proved fact that malaria cannot be contracted by any other means than by the bite of an infected mosquito, indicate clearly that in a malarial campaign two enemies must be combated, firstly the malarial parasite in the blood of the patient, and secondly the culpable mosquito. According to the local conditions more attention must be paid to the one or the other factor; but a durable peace can only be won when both factors have been successfully combated.

Fortunately quinine salts are a specific and nearly infallible remedy, but only a prolonged and rigorous administration of the drug can bring about a successful cure. The usual way of taking a few doses of quinine for a short time, when the temperature is high and the suffering acute, is more harmful than beneficial. The attacks are cut short, a great number of parasites are destroyed, but those which are more resistant take shelter in the spleen and bone marrow, escaping the bitter enemy, and appear again rejuvenated in the blood after the last trace of quinine has been eliminated.

The malarial parasites, which belong to the phylum of protozoa, possess a complicated structure, and share with other protozoa the property of becoming accustomed to a specific drug, when administered erratically, and in small doses only, and even acquire after a certain space of time a resistance against the drug. These quinine resistant parasites are afterwards only influenced by a prolonged administration of massive doses of the drug.

In order to form a conclusive opinion as to the efficiency of the treatment, a conscientiously carried out system of notification is essential under the supervision of a health officer, alive to his responsibilities. The notification of a number of new cases from a certain area would prove the existence of a parasite carrier, spreading the infection broadcast, and an enquiry would locate the carrier, and would make it possible to remove the evil influence by freeing his blood from parasites.

The eradication of the mosquito is of equal importance for the success of an antimalarial campaign. This can be accomplished by destroying the larvæ and pupæ, and preventing as far as possible the adult female mosquitoes from laying their eggs, by removing all collections of water suitable for breeding, existing within the precincts of the township. The range of flight of mosquitoes is somewhat limited, and mosquitoes do not travel more than half a mile, unless driven by a strong wind.

The dealing with swamps is purely an engineering problem. Swamps may be either filled in or, wherever possible, be drained. Should, however, on account of the extent of the water collection, or for other reasons, draining be impossible, a systematic oiling of the surface may minimize the mosquito plague.

The efficiency of a systematic application of a larvacide has been demonstrated by the Americans in Panama (3), where a phenol-resin soap was used for this purpose, which in a 1 in 5,000 emulsion killed full-grown anopheles larvæ in from ten to twenty minutes, and possessed a low toxicity to higher animals, being practically harmless to cattle, poultry and other domestic animals in ordinary doses or in dilutions used. The success of the oiling of swamps, however, depends entirely on the care with which the operation is carried out, and careless and spasmodic oiling is perfectly useless.

A thoroughly carried out malarial campaign represents a sound investment on the part of the affected community. The economic loss, caused by the inefficiency of labour on account of malarial infection, by hospital expenditure, and by the evil reputation of the health of the town, justifies, as a rule, even a large capital expenditure.

Literature.

(1) Malcolm Watson—"Rural Sanitation in the Tropics," London, John Murray, 1915.
(2) Ross—"The Prevention of Malaria," London, John Murray, 1910.
(3) Le Prince and Orenstein—"Mosquito Control in Panama," Putnam & Sons, New York, 1916.

A PLEA FOR ADEQUATE RECOGNITION OF THE PART THAT CAN BE PLAYED IN SHELL-SHOCK BY SEPTIC FOCI.

By **Sydney Pern, M.R.C.S. (Eng.), L.R.C.P. (Lond.),**
Melbourne.

On a good many occasions during my work in the out-patient department of the Melbourne Hospital, returned soldiers have turned up suffering from a train of symptoms, which have been included under the heading of shell-shock. In practically all these cases there has been some marked infection of tonsils, sinuses, antra or teeth, the three cardinal symptoms being a highly excitable nervous state, tremor and more or less acceleration of the pulse rate.

It is universally admitted that toxins absorbed have a general depressing effect on all the body mechanism, but it is surely more than a coincidence that such toxic products should act with particular potency on the endocrinous organs, notably the adrenals and thyroid, the very glands which are so deeply implicated in shell-shock conditions.

In neurasthenic conditions it requires a very much smaller stimulus to nerve cells to produce a reaction than in normal conditions; there is also every reason to believe that the same condition is produced by the action of toxins on those cells.

Exophthalic gôitre can be inaugurated by toxic absorption or profound emotional disturbances, the symptoms of which point to an increased output of both thyroid secretion and adrenin. Hyper-adrenalism being produced by fear, anger, etc., is now

an accepted doctrine, and has been proved experimentally on cats.

The conditions which cause shell-shock have been given full recognition, but I believe the presence of toxic absorption as a causative factor has not been given sufficient emphasis.

NOTES ON WAR SURGERY.

By **H. Flecker, M.B., Ch.M., F.R.C.S. (Ed.),**
Temora, New South Wales.

Dorsal Wrist-Drop Splint.

Almost without exception, every wrist-drop splint which I have seen worn by soldiers admitted to No. 21 Australian Auxiliary Hospital suffers from the serious objection that it completely immobilizes the wrist, and often the fingers as well. However, it may be the aim of some surgeons to prevent all movements of flexion at the wrist, metacarpo-phalangeal and inter-phalangeal joints, especially in cases of musculo-spiral paralysis, where the indication is to relax the extensor muscles as much as possible, although this often leads to considerable stiffness. Anterior splints are almost invariably employed.

The following splint deserves to be better known than it is. This consists of a splint moulded to the dorsal surface of the forearm, and also to the dorsum of the hand, reaching only as far as the metacarpo-phalangeal joints, and with a hinge opposite the wrist. The thumb may be left quite free, and the lower part of the splint strapped across the hand, excluding the thumb. A tension spring, which is stretched from the upper end of the forearm piece to the lower end of the hand piece, should be sufficiently strong to maintain extension and to prevent absolutely all flexion at the wrist.

The special advantage of this splint is that it permits of a certain degree of movement at all joints, and although fully correcting the wrist drop, it does not allow flexion of the wrist, while the patient has almost the full use of his thumb and fingers. Pronation and supination are not interfered with to any great extent.

Adjustable Splints Applied to the Knee-Joint.

The success which has attended the application of adjustable splints in the case of stiff elbows has been so marked that it has occurred to me to try the same procedure in the case of stiff knees. In the former case more improvement will be noticeable after wearing the apparatus for a few days than after weeks of the ordinary treatment by movements, exercises, massage, etc. Though the patient complains of a great deal of aching, I have scarcely ever come across one who will not readily admit to improvement, even after only a few days' use of the apparatus.

While in the case of the elbow-joint the splint can be worn at all times constantly, it is only practicable to wear one on the lower limb at night time. I have not had much opportunity of applying this procedure to the knee in many cases, but in the few I have tried it, it seems to promise considerable success.

In the case of elbows, with either limited extension or flexion, or both, I have been in the habit of ordering adjustable splints almost as a routine procedure. Accessory treatment, such as movement, exercises, massage, etc., can always be prescribed in addition, the splint being temporarily removed for the purpose.

Fracture of the Metacarpal Bones.

As the result of observation upon a large number of cases of fractured metacarpal bones at No. 21 Australian Auxiliary Hospital, George's Heights, I have noticed that a large number suffer from a more or less rigid ankylosis of the metacarpo-phalangeal joints in the position of extension, and this occurs even in cases which apparently have involved only the base of the bone.

In most cases the hand has been immobilized with the fingers extended, despite the teaching to bandage up in the flexed position, especially as there is no great tendency to displacement of the metacarpal bones. In cases where the joint becomes ankylosed in the flexed position, it is very much easier to correct this deformity than the one mentioned above.

Treatment of ankylosis of the inter-phalangeal joints in extension does not present the same difficulty as in the case of the metacarpo-phalangeal joints, and generally yields readily to firm bandaging of the closed fist.

The advantage of treatment of fractured metacarpal bones by flexion instead of extension at the distal joint, therefore, cannot be too strongly emphasized.

Reports of Cases.

TWO INTERESTING CASES.[1]

By **E. C. Moule, M.B., B.S. (Adel.),**
Wagin, Western Australia.

I.

Eclampsia-Cæsarean Section.

Mrs. R., *æt.* 39 years, a primipara, came to see me on February 25, 1918. She expected to be confined on April 23, 1918. There was general œdema, scanty urine, and albuminuria, but no headache, vomiting, nor visual trouble. She was dieted, and told to drink plenty of water and to keep her bowels open.

The œdema got less, the urine more plentiful, but the albuminuria persisted. On March 18, 1918, as it had increased, I put her in a lying-in home, and gave her only milk and water. On the next afternoon, March 19, severe headache came on, and then vomiting. At 11 p.m. she had a severe convulsion. Morphine (0.03 grm.) was given hypodermically. She was quiet and semi-unconscious till 2 a.m., when she had another fit. Morphine (0.015 grm.) was given, and a rubber sheet put between the blankets covering her. She sweated freely, and vomited at intervals, but was not restless. Dr. Mackie, who came from Narrogin, 30 miles away, saw her in consultation at 6.30 a.m., and we agreed, as there was no sign of labour coming on, that abdominal Cæsarean section should be done.

At 7 a.m. she had another fit, and morphine (0.03 grm.) was given.

At 9.30 a.m. (March 20, 1918), under chloroform and ether, given by a nurse, and with Dr. Mackie's assistance, I opened the abdomen. On opening the uterus the child presented, and was easily removed. The placenta was also easily removed. There was very little bleeding, as Dr. Mackie, with his hands and two soft towels, controlled the vessels splendidly. The cut in the womb was closed in two layers with catgut. About 1½ litres of saline solution were poured into the belly after a few blood clots had been removed, and the belly wall was closed in three layers.

The patient stood the shock well. Her pulse-rate was 88 a minute when she left the table, and her temperature was normal.

[1] Read at a meeting of the Western Australian Branch of the British Medical Association, on April 17, 1917.

She vomited very little afterwards, and soon passed a fair quantity of urine. She continued to drink plenty of water and to sweat freely.

The child is a male, and weighed 2 kilograms at birth. It was very blue when born, but prompt attention by a nurse soon brought it round. The woman gave no trouble afterwards, except there was a little pyrexia, but the temperature never went above 37.8° C..

On April 8, 1918, the wound was firmly healed, and she was allowed to get out of bed to the nightchair. She is partly able to suckle the infant. There is still a trace of albumin in the urine, and she is still being dieted. I have put her on a laxative-iron mixture, as she is somewhat anæmic.

As soon as she knew she had a live son, she was perfectly happy, and I feel that had the child been dead, the mother would probably have died also. She was willing to take any risk to have a living child.

Abdominal Caesarean section is a much easier operation than vaginal, for the general practitioner.

II.

Intussusception, Intermittent, due to Congenital Cyst—Operation; Death.

L. R., 4 years old, was brought in from the country to see me, at 8 p.m. on March 31, 1918. The child had had attacks of vomiting and belly ache for two days. It was ascribed to water melon. The usual aperients had been given, and acted, but the vomiting and pain still came on at intervals. I could find nothing wrong, except that her pulse was rather quick. There was no pain, or even tenderness, on abdominal palpation, and no vomiting whilst in my surgery. I gave a mixture of morphine and chalk and a water only diet. There had been no rectal bleeding. On April 1, 1918, the mother reported that there had been vomiting and pains at intervals throughout the night. I sent the child to the Wagin Hospital. The pulse-rate went to 120, and vomiting and pain still occurred, but were less frequent. There was an interval of 9 hours. The mixture was stopped.

At 9 on the following morning, the pulse-rate was 120. She still had attacks of pain and vomiting. A fullness in the left iliac fossa and an emptiness in the right iliac fossa were noted. *Per rectum* an elastic swelling was felt about 7.5 cm. up the gut. There was now no doubt in my mind that I had to do with an intussusception.

At 10.30 a.m. I cut down in the mid-line, and found the mass in the left iliac fossa. It was an intussusception, and with a little cautious squeezing and pulling it was reduced, and proved to be ileo-caecal. The appendix was long and congested, so I removed it. Then I noticed that what I had taken to be a fæcal lump in the head of the colon was not freely moveable along the gut. It would only move a little way, and was fixed to the opposite side of the gut. I therefore pushed the lump up to make the gut wall tense, and opened the colon. The lump was in the wall of the gut and encroached on its lumen. On dividing the dark red velvety mucous membrane, I inadvertently cut into the lump, which proved to be a cyst, containing clear fluid; it was as big as a large walnut. I found it impossible to remove the cyst wall, and as I was afraid to attempt resection of the gut, I left the cyst open, closed the cut in the colon and sewed up the abdomen. Towards the end of the operation the child got very collapsed, and vomited a lot of very dark green stuff, something like coffee grounds.

My anæsthetist was the matron, and my only assistant a nurse, so you can well understand my feeling of relief when the job was over. The child lived 14 hours afterwards, and passed flatus and took some fluid during that time.

A post-mortem examination was performed six hours after death. There was no recurrence of the intussusception. The last part of ileum was much smaller, whiter and thicker walled than the rest of the small bowel. The wound in the colon was air-tight.

In March, 1914, when only five days old, this child had had bloody motions, and was brought in to Dr. L. Baker, who was acting for me. He could find no local trouble to account for the bleeding. The child got well, and soon went home. From time to time the child, who was well-grown and active, would have belly ache, and perhaps some vomiting, but would get well again.

The cyst must have been congenital, and caused the many attacks of intussusception which, only on one occasion, the first, was attended with bloody stools.

In Keen's system of surgery, 1908 Edition, Vol. IV. p. 661, 16 cases, mostly pedunculated, are mentioned. Unfortunately this one was not pedunculated.

Reviews.

HUMAN INTESTINAL PROTOZOA.

The outbreak of dysentery among the troops on the Gallipoli Peninsula in 1915 and the invaliding of large numbers of soldiers from the Peninsula have focussed a large amount of attention on the human intestinal protozoa, particularly the amœbæ.

Lieutenant-Colonel Wenyon and Captain O'Connor were detailed by the Medical Advisory Committee to investigate the subject in Egypt, and the results of their work were published in a series of articles in the *Journal of the Royal Army Medical Corps* during 1917. These articles have been collected together and published in book form under the title of "Human Intestinal Protozoa in the Near East."[1]

The publication is a very valuable one, and presents many new aspects of intestinal protozoal infection, particularly in relation to *Entamoeba histolytica*.

The book is divided into four parts, dealing respectively with:—

I. The incidence of protozoal infections amongst British troops and natives in Egypt, with special reference to the carrier problem of the amœbæ of dysentery.

II. The characters and diagnosis of the various intestinal protozoa of man in Egypt, with a description of three new forms.

III. Treatment of *E. histolytica* and other protozoal infections of the human intestine.

IV. Experimental work with the human intestinal protozoa, their carriage by house flies and the resistance of their cysts to disinfectant and other agents.

There is also an appendix with histories of cases treated, and some most useful plates illustrating the different types of intestinal protozoa.

That persons who have never suffered from dysentery, as well as those who have recovered from attacks of amœbic dysentery, may be healthy carriers of the entamœba has long been known, but no exact data were available. Wenyon and O'Connor have rendered a great service in determining the incidence of *Entamoeba histolytica* infection among a large number of persons, healthy or suffering from diseases other than intestinal, in a particular area and under particular conditions. They point out that it is impracticable to examine large bodies of troops with a view to eliminating the carriers of entamœba. The majority of carriers are perfectly healthy, and it is clear, from their results, that there are many carriers for every one who actually contracts amœbic dysentery. In the case of men invalided for intestinal disorders and still ill, if *E. histolytica* is found to be present, the condition can be treated. This is important, in view of the large number of men returning to Australia, many of whom are certainly carriers.

The section on the characters and diagnosis of intestinal protozoa is well done, but would not be of great assistance to the tyro. A useful point which is brought out is that the stools of bacillary dysentery are characteristic, both macroscopically and microscopically.

With regard to the treatment, the best results seem to have been obtained by the combined injection and oral administration of emetine. It is insisted that cases should be controlled for at least a month after the treatment, to determine whether or not relapses occur. Altogether a most useful book.

SUGGESTION FOR HYSTERIA.

In a moderate-sized book of representative cases, Lewis R. Yealland demonstrates the valuable aid of "suggestion"

[1] Human Intestinal Protozoa in the Near East, by C. M. Wenyon, B.Sc., M.B., B.S., and F. W. O'Connor, M.R.C.S., L.R.C.P.; 1917. London: Published for The Wellcome Bureau of Scientific Research by John Bale, Sons & Danielsson, Ltd.; Crown 8vo., pp. 218, with four plates and many illustrations. Price, 10s. 6d.

in "Hysterical Disorders of Warfare."[1] A preface by E. Farquhar Buzzard introduces the author, and dispels any feeling of doubt that the reader could almost justifiably have in reading the remarkable account of successes which the author claims to have made. The cures were effected at the National Hospital, London, where the author had a large field for operation. He relied upon a dynamic onslaught of suggestion, plus the faradic current. The "suggestion" permitted the patient no argument or any freedom of thought, except in the direction of the idea that the treatment would cure the condition present. Dr. Yealland must have an unusually strong personality and enduring strength of mind and body to enable him to bring the *séances* to a successful termination, as some of them lasted hours before the patient was cured. It is doubtful if the same good results could be obtained by a physician physically inferior to Dr. Yealland, as the physical and mental exhaustion must be considerable before some of the cases have been brought to a successful issue. Once the patient's consent to treatment is obtained, he is told that a cure is certain, and will be made by the aid of electricity. Prior to the offer of relief, the author systematically examines the patient, to exclude the possibility of the condition being organic, and some very useful rules of the differential diagnosis are suggested. Once the treatment is commenced the patient experiences a strenuous time, varying in proportion to the resistance his ideation offers to the suggestive idea that a cure is about to take place. The accounts of some of the encounters between the author and patient make amusing reading. All kinds of functional disorders have yielded to this treatment in the author's hands. The chapters are arranged to group hysterical disorders of speech, hearing, vision, etc., into separate sections. This somewhat simplifies the arrangement of what is admittedly a subject which arranges its symptoms independently of anatomical or physiological rules. The author had one advantage, which, up till now, other medical men have not possessed, and that is the fact that a number of the patients were the subjects of military discipline, and had to agree to treatment, "willy nilly," or have a report to that effect forwarded to the Board of Pensions. Individuals free from such restrictions might have refused to give their consent to the treatment, or, having received a taste of the faradic current, with the dominating manner of the author, they might have refused to proceed any further with the cure. The book has a good index, and is printed in a large, bold type. If the war has done nothing else, it has shown that hysterical affections can be cured in the space of a few hours, provided one has the necessary legal and physical power to enforce the treatment.

Any medical man interested in psychiatry or nervous diseases will appreciate the reading of Dr. Yealland's experiences.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending July 27, 1918:—

	Metropolitan Combined District. Cs.	Dths.	Hunter River Combined District. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	5	0	0	0	4	0	9	0
Scarlatina	22	0	0	0	9	0	31	0
Diphtheria	54	2	6	0	50	2	110	4
*Pul. Tuberculosis	25	10	0	0	69	0	94	10
C'bro-Sp'l Menin.	2	1	0	0	2	0	4	1

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

[1] Hysterical Disorders of Warfare, by Lewis P. Yealland, M.D., with a Preface by E. Farquhar Buzzard, M.D., F.R.C.P.; 1918. London: Macmillan & Co., Limited; Demy 8vo, pp. 248. Price, 7s. 6d. net.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending July 28, 1918:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total Cs.	Dths.
Enteric Fever	1	0	1	0	2	0
Scarlatina	41	2	19	1	60	3
Diphtheria	77	1	61	1	138	2
Pulmonary Tuberculosis	20	16	11	7	31	23
C'bro-Spinal Meningitis	1	—	0	—	1	—

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending July 27, 1918:—

Diseases.	No. of Cases.
Enteric Fever	4
Scarlatina	15
Diphtheria	54
Pulmonary Tuberculosis	7
Erysipelas	4

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the fortnight ending July 20, 1918:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Scarlatina	42	14	56
Diphtheria	32	14	46
Pulmonary Tuberculosis	2	4	6
Malaria	1	0	1
Septicæmia	1	0	1
Hæmaturia	0	1	1
Erysipelas	3	0	3

NEW ZEALAND.

The following notifications have been received by the Chief Health Officer, Department of Public Health, Hospitals and Charitable Aid, New Zealand, for the four weeks ending July 22, 1918:—

Diseases.	No. of Cases.
Scarlatina	167
Diphtheria	673
Enteric Fever	24
Pulmonary Tuberculosis	97
Poliomyelitis	1
Puerperal Fever	5
Erysipelas	3
Cerebro-Spinal Meningitis	7
Poliomyelitis	1
Septicæmia	1
Hydatids	3
Ophthalmia Neonatorum	2

The announcement of the death in action of Captain Ronald Sinclair Kennedy, M.C., R.A.M.S., the only son of Dr. John W. Kennedy, of Macquarie Street, Sydney, will be read with widespread regret and deep sympathy. Captain Kennedy was born in Australia, but left these shores at the age of fourteen years. He studied medicine at Guy's Hospital, in London, and qualified in 1912. In the following year he graduated at Cambridge University, and, in addition to his degree in medicine, he gained his B.A. and B.C. In 1917 he became doctor of medicine. He entered the Egyptian service after leaving Cambridge. At first he was appointed Ophthalmic Surgeon to the Daquahlia Provincial Hospital, and later he was chosen to be Inspector of Anchylostoma Hospitals. Late in 1916 he accepted a temporary commission in the Royal Army Medical Corps, and was promoted to captain in 1917. He received the Military Cross for conspicuous bravery and devotion to duty on September 26, 1917. He was killed in action on April 17, 1918.

The Medical Journal of Australia.

SATURDAY, AUGUST 10, 1918.

Malaria in the North!

It is no uncommon experience for a medical practitioner to have his diagnosis questioned by a patient on the ground that the patient had never before suffered from that disease. A similar attitude of mind appears to exist in certain communities concerning visitations of disease from which they had previously been immune. It is not at once apparent why an infective process like measles, or an infestation like hookworm disease, should avoid a district through centuries and then, without obvious cause, suddenly play havoc among the inhabitants. The history of first epidemics of morbilli and syphilis in various countries have found the community totally unprepared and highly susceptible. The hookworm survey in Papua, undertaken by Dr. Waite, of the International Health Board of the Rockefeller Foundation, has shown that the invasion of the plantations is of recent occurrence, and that there is still time to prevent the worm from gaining a foothold in the villages. Dr. A. Breinl and Mr. F. H. Taylor, of the Australian Institute of Tropical Medicine, have recently carried out a research into the incidence of malaria at Cairns, and publish the findings of this investigation in the present issue. From this study it will be recognized that, during the course of a number of years, malaria has attacked the inhabitants, and that the disease has assumed formidable proportions. Notwithstanding the fact that the blood of persons who were supposed to have suffered from ague was examined, and not of those presumably free from infection, the infection incidence in Cairns is undoubtedly a high one. The authors express the opinion that the presence of malaria forms a serious handicap to the future development of the town. The menace is a still more serious one, for there is no guarantee against the spread of the disease to other townships and areas. The importance of keeping the door open for industrial development is admitted. Whether the north can be opened out on the While Australia policy, or whether in the future labour in the tropics will be recruited from the coloured races, the problem remains the same. To have a profitable tropical Australia, endemic diseases must be controlled and kept in check.

There is one serious defect in the researches which have been carried out in Australia in connexion with malaria. Investigators have been content to rely on the work of protozoologists in other parts of the world, and have assumed that the vector of the plasmodium is the *Nyssorrhynchus annulipes*. The fact remains that no one has yet demonstrated the *Plasmodium vivax* or the *Plasmodium falciparum* in this or any other mosquito in the Commonwealth. Dr. Breinl and Mr. Taylor accept the probability that the most common of the anopheline mosquitoes in north Queensland is the carrier of the plasmodium. Scientific methods require that assumption shall be replaced by ascertained fact. It may be difficult to collect a sufficient number of mosquitoes to discover which are infected, but it has been done in many other countries, and should be achieved here. Moreover, since the control of the disease involves a complete and efficient destruction of the breeding-places of the carriers, and since this is necessarily an expensive matter, there may be no suspicion of doubt concerning which mosquito acts in this way. It is to be hoped that the Townsville workers will extend their researches to other districts in the north, and that the distribution of malaria will subsequently be shown on a map of the tropical portion of the State, as it is now shown for the township of Cairns. When this is carried out, the question should be settled definitely whether or not the *Nyssorrhynchus annulipes* is the vestor of the plasmodium. As soon as this is established it will become the duty of the health authority to lose no time in clearing out these mosquitoes as they were cleared out in the Panama. It would be expedient and economical to extend the mosquito destruction far beyond the limits of the tropics. Anophelines are met with throughout Queensland, and as far south as the Murray River. The area over which these mosquitoes are distributed is very wide, and it must not be assumed, because these districts have, in the past, been practically free from malaria, that they will remain so. How readily mosquitoes may find a fav-

ourable breeding-place is well known. Andrew Balfour has some highly instructive stories to tell of the unexpected appearance of various mosquitoes, including *Stegomyia* and *Pyretophorus,* on irrigated land, in small tins, used as ant traps below the feet of ice chests, and even in a basin in his own laboratory on the Nile. The climatic conditions in many parts of Australia will be found to satisfy the needs of anopheline mosquitoes. All that is wanted is some favourable pools or other collections of water, and a previously immune area may be converted into an incubator for these insects. Treatment and supervision of persons suffering from malaria may effect a considerable safeguard, but without a proper mosquito campaign, the danger of a widespread of the disease cannot be removed by these means.

HOSPITAL ADMINISTRATION.

In practically every State in Australia there is some evidence of an impending gradual or sudden revolution in the management of hospitals. Financial straits in some institutions have impelled the Government to take over the administration or at least to assume sole control over the financial arrangements. In other instances the Government subsidy is given each year with increasing signs of an intention to reform the methods of conducting the institutions. Suggestions have been put forward with the view to the transference to the control from the existing boards of management to either the State or the municipalities. In addition to these murmurings under and above ground, there is the fact that a number of large hospitals have been created to meet the demands of the Australian Army, and, consequently, when the war is over, the authorities will have to determine what is to become of these institutions, and how they are to be administered, if they continue to serve as asylums for the treatment and care of the sick. The recent utterances of the State Treasurer of Victoria in regard to the management of the great public hospitals of Melbourne leave no doubt that the intention of his Government is to preserve the charitable nature of these hospitals. In Tasmania the Premier is to introduce a Hospitals Bill during the present session, probably on the same lines as the measure which received a short but unfavourable analysis in these columns a few months ago. It thus appears that, while there is an attempt to throw open public hospitals to rich and poor alike in certain parts of the Commonwealth, the nature of the more widespread change which appears to be imminent, is a reform in the administration and not a reversal of the primary function of the institutions.

The medical profession is profoundly interested in the administration of hospitals, since the proper conduct is essential to good professional work being carried out. It is a matter of small concern to the medical profession whether the management of the hospital is in the hands of a State-appointed board or a body of philanthropists elected from among the subscribers. On the other hand, medical practitioners, from their intimate association with these places, are usually competent judges as to the best methods of management. The function of an efficient board is to nurse its resources as far as is consistent with the fulfilment of the aims and objects of hospitals, to organize the departments to the best advantage of the patients, and to control the general conduct of the establishment, that it may serve its purpose with a good reputation. Incidentally, the board of management should endeavour to provoke local interest in the institution, both with a view to the raising of voluntary contributions toward the maintenance of the patients, and in order that the sick poor may have a sense of security in knowing that others are watching how they are cared for during periods of illness. It is obvious that the business aspect of the management is best entrusted to those who have experience in the making of advantageous contracts and in supervising the manner in which the goods supplied are up to standard of excellence. The experience of municipal control in matters of business should cause business men to hesitate before they agree to entrust the councils with the responsibility of the financial affairs of hospitals. Moreover, the efficient managers of hospitals are those who have voluntarily sought experience in this direction, and not men and women who seek local fame at the hustings and become elected on to the hospitals committee by mere chance. In the next place, the boards should always contain representatives of the medical staff and of the medical profession of the district, in order that the disposition of the work in the departments may be wisely

arranged. The choice between an elected board and one nominated by a Governmental department is a difficult one to make, provided that in either case the members of the board are elected locally, and include those whose knowledge and interests fit them for the duties to be performed. However the election or nomination is carried out, there should be the fullest trust between the board and the medical practitioners who carry out the work of the hospitals. It therefore becomes apparent that any reform which would disturb the present utilization of ladies and gentlemen who have given their attention to hospital affairs and have worked in their interests in the past, is to be deprecated. In many instances, however, it is necessary that the Government should define its obligations to the hospitals clearly, in order that the boards of management are left in no doubt as to the means at their disposal to discharge their duties. The proposal that there should be a central hospital board in the State, or in certain parts of the State, has much to recommend it, since this board could render signal service by eliminating unnecessary institutions and by co-ordinating the activities of the various institutions in the same or contiguous districts. In this way economy could be effected without loss of efficiency. It is essential, however, that the central board should not be empowered to interfere with the internal administration of the hospital, as long as the administration is conducted in accordance with accepted principles and as long as the interests of the patients remain paramount.

THE GROWTH OF BONE.

The mechanism by which the growth of bones is brought about is little comprehended. Many studies have been made of the morphological events accompanying the increase in size and weight of bone. These anatomical and microscopical investigations have furnished considerable descriptions of certain phases of these phenomena. There appears to have been a tendency to regard these descriptions as being more or less complete accounts of the whole process of formation of bone. As a matter of fact, they tell us where bone is laid down when a bone lengthens or enlarges, and they give us an excellent history of the manner in which bone makes its appearance in the cartilaginous and membranous structures of the fœtus. They do not, however, supply any explanation of the formation of bony material, or of the chemical changes leading to the deposition of inorganic salts or of the varying rates at which ossification takes place. The information at present available about the chemical composition of bone and about the factors influencing its growth is meagre. The studies made on the chemistry of bone deal mainly with bones as they occur in the museum or the laboratory, and with the compounds such as gelatine, separated by destructive processes. Of bones as they exist in living animals and in man, we only know that they resemble somewhat the bones which have been boiled in water, steeped in alkalis and otherwise treated by the curator of the museum or the anatomical attendant. We are aware that a diminution in the amount of calcium in the food may, at times, retard the growth of bones, and that the addition of salts of lime to the diet may promote the ossification of the ill-developed bones. We know that the administration of an excessive proportion of salts of magnesium leads to the discharge of calcium from the organism and to the removal of salts of calcium from the bones. The means by which these changes are brought about do not as yet admit of precise definition.

In 1872 Wegner gave 0.16 mg. yellow phosphorus daily to young cats, dogs and chickens. He observed that a new formation of osseous material occurred in the diaphysis of the long bones along the epiphyseal lines. The newly-formed bone appeared as a dense layer, the width of which depended on the length of the period of the use of phosphorus. When the period was short, the zone of dense bone was narrow, but when the period was prolonged, the zone was broad, and, at times, included the whole of the trabeculated portion of the ends of the shafts. The superficial laminæ of the shaft were increased in thickness and density. In chickens this change might progress so far that the medullary cavity became obliterated. In the epiphysis similar ossification occurred, but the compact bone was limited to a narrow line. When phosphorus was given to adult animals, no change in the bones could be detected. These experiments upon animals were correlated with observations made at autopsies upon a child with atrophic but otherwise normal bones who had received phosphorus for two months before its death, and upon three children dying of rickets who had received treatment with phosphorus. Wegner also noticed that phosphorus increased the formation and ossification of callus in fractures in animals. Red phosphorus and other compounds of phosphorus did not seem endowed with similar powers of changing the character of ossification.

Twelve years later Kassowitz confirmed the observations of Wegner, and, in consequence, used phosphorus extensively in the treatment of rickets. He found further that the continued use of larger quantities of phosphorus leads to osteoporosis and the production of a condition indistinguishable from experimental rickets. A little later cod liver oil was utilized as the solvent for the phosphorus. When the relationship between rickets and the metabolism of calcium was recognized, studies were made upon the influence of cod liver oil and phosphorus on the accumulation of calcium within the animal body. These investigations showed that diminished elimination of calcium might be occasioned by the judicious use of cod liver oil and phosphorus, and that the addition of salts of lime to the diet might lead to a further storing of lime

within the body. The absence of reliable analytical data as to the amount of calcium stored in the bones detracts greatly from the value of these studies. More than 98% of the lime in the animal body is present in the bones, so that studies of calcium metabolism which take no note of the amount in the bones seem liable to be misleading.

Some new observations on the influence of phosphorus on growing bones have been made by D. B. Phemister[1] in young children. The effects of the drug have been examined by the aid of photographs taken with the Röntgen rays. These photographs demonstrate with precision the formation of dense enchondral bone. When the employment of phosphorus has been discontinued for a while, two dense areas, separated by less compact bone, appear near the ends of the shafts. In a case with fractures, phosphorus seems to accelerate the calcification of callus. As far as the experimental evidence goes, phosphorus should stimulate the formation and ossification of callus if administered in the early stages of the union of a fracture. The study of the changes occurring in the bones in rickets and of the effects of phosphorus, cod liver oil and other remedies in this condition by means of Röntgenograms seems desirable. Such studies might shed new light on this condition, about which pathological conceptions are so vague.

TRENCH FEVER.

In the year 1915 the medical officers serving in the casualty clearing stations became familiar with a form of "pyrexia of unknown origin," which soon earned for itself the designation of trench fever. Two distinct types of fever were recognized by McNee, Renshaw and Brunt,[2] who published the first full account of the condition. In the one type the pyrexial attack lasted for a period up to three weeks or more, and the fever was remittent in character. In the other type there was intermittent fever. The bout of fever lasted from one to three days, and was separated from the succeeding one by an interval of from three to six days. Crean and Barton[3] have pointed out that cardiac involvement is common in trench fever. It occurs in the relapsing cases, but more frequently in the remittent type. The significance of trench fever from a military point of view is considerable, and, consequently, much attention has been given to its ætiology. Hitherto opinions have differed widely as to whether the affection is a new one or a previously known pathological condition, modified by the baneful effects of trench life, with its exposure to wet, cold, fatigue, anxiety and laborious work. It is usually regarded as an infective process, and suspicion has rested with that ominous trench associate, the body louse. In view of the importance of the condition a committee of the War Office was appointed in December, 1917, by the Director-General of Medical Services, Surgeon-General Sir Alfred Keogh, with Surgeon-General Sir David Bruce as chairman, to investigate the disease.[4] The committee immediately set to work to determine whether or not the louse had been maligned. A "clean stock" of lice was selected and bred under controlled conditions. These lice were fed on patients suffering from trench fever in the Hampstead Military Hospital. The lice were placed under the control of Mr. Bacot, of the Lister Institute of Preventive Medicine, an undoubted expert. Volunteers were sought and found, and two men well over military age allowed themselves to be bitten by the lice that had fed on trench fever patients a few hours before. Nothing happened; the men remained well, although subjected to the louse experiment for over a month. They refrained from scratching themselves—a feat deserving of recognition. Major Byam then suggested that perhaps the unnatural restraint had limited the chances of infection. The next set of experiments were therefore conducted in a different manner. An area of skin of about six square centimetres of a fresh volunteer was lightly scarified and a small quantity of the dried excreta taken from the boxes in which the infected lice had been kept, was rubbed in. In addition, eleven lice were crushed and rubbed on to the scarified area of skin of another volunteer. After eight and ten days respectively, the men were down with trench fever. The experiments were repeated, and the same result was obtained. In three men the incubation period was six, seven and eight days. Next a small quantity of the blood of one of these men was injected into another volunteer. The latter developed the fever five days later. These experiments indicate that the lice do not inoculate soldiers with a disease-producing germ in the usual way of vectors. The excreta, or something contained in them, has to be absorbed through the broken skin before fever results. It is by no means certain that the louse acts as an intermediary between patient and soldier. Consequently, the committee is now endeavouring to determine whether the excreta of lice that have not been fed on trench fever patients can produce fever in a similar manner. One interesting and possibly important observation has been made. It has been shown that lice will migrate from a febrile person to a person with a normal temperature, if it gets the chance. If the disease is actually carried from man to man, this unfortunate habit of lice may have an ætiological significance. While the relation of the louse to trench fever is being investigated still further, the prophylaxis of the disease can be begun. Its prevention can be carried out by the elimination of lice from the trenches. A very determined campaign with this object in view is being planned, and will no doubt be put into effect.

[1] *Journ. Amer. Med. Association*, Vol. LXX., p. 1737, June 8, 1917.
[2] *Journal of the Royal Army Medical Corps*, April, 1916.
[3] *Journal of the Royal Army Medical Corps*, March, 1918.
[4] *Ibid.*

THE BEHAVIOUR OF VACCINE VIRUS.

Notwithstanding the fact that the virus of vaccinia has not yet been seen, pure strains have been cultured *in vivo* by Hideyo Noguchi. The virus can be propagated in the testes of rabbits, and when the experiment is carefully performed, it remains free from contaminating bacteria. The same author has continued his studies, and has some interesting information to impart.[1] In the first place, he has found that

[1] *The Journal of Experimental Medicine*, March 1, 1918.

continued passage of the virus enhances its virulence for testicular tissue without impairing its virulence toward the skin. In an exceptional instance he was able to produce a vaccine after propagation for successive generations during three years, which gave rise to a confluent eruption when a dilution of 1 in 10,000 was inoculated on the shaved skin of rabbits. The injection of 1 c.cm. of undiluted testicular virus into the veins produced a generalized eruption, but this effect was not produced when the virus was diluted or when the injections were made subcutaneously. Moreover, it was found that both subcutaneous and intravenous application of the vaccine induced an immunity toward a powerful vaccine. It thus appears that the pure testicular vaccine is endowed with well marked protective powers, and that there is reason to regard it as equally potent as the usual calf vaccine. A series of experiments was carried out with the object of determining the effect of the addition of water, antiseptic substances and other chemicals on the biological properties of the virus. The vaccine, it will be remembered, is free from bacteria, and, consequently, it is not necessary to add an antiseptic, as is the case with calf lymph. Distilled water proved a satisfactory diluent, but after the course of 271 days at 4° C., 28 days at 18° C., and 9 days at 37° C., its potency deteriorated. Better results were obtained when Ringer's solution, or 0.9% saline solution was used. The usual addition to calf lymph for preservative purposes is glycerol. Testing the effect of the addition of this substance, Noguchi found that, even at low temperatures, the potency of his virus diminished very rapidly. Far less damage to the vaccine is produced by phenol. When employed in a concentration of 0.5% to 1%, the vaccine kept well for a considerable period. It was, however, rapidly destroyed when a concentration of 2% was used. The vaccine can be kept in a sealed tube with air, hydrogen or nitrogen for longer periods than it can be kept in an open receptacle. Oxygen and carbon dioxide have an impairing influence on the vaccine. The virus can be kept in a dried state, but deterioration appears soon. This may be due to the difficulty experienced in re-emulsifying it satisfactorily. Dried vaccine is just as susceptible to changes as emulsified vaccine.

The experiments on testicular vaccine are calculated to throw some light on the anomalous behaviour of calf lymph. One grave disadvantage that has been experienced in the past when lymph from various sources has been used, is that from time to time severe reactions have appeared. There is no evidence that the protection afforded is proportional to the severity of the reaction. On the other hand, there would seem to be ground for the belief that in many cases the lesions produced in the skin are largely brought about by contaminating bacteria. Unfortunately, calf lymph is contaminated during the process of collection, and means have to be adopted to kill the bacteria before the lymph is stored. The dissociation products of the bacteria are not indifferent, and, consequently, when the contamination is severe, the purity of the lymph is seriously affected. The addition of glycerol for the purpose of sterilization would seem to have a grave disadvantage; according to Noguchi's experiments, the virus becomes definitely impaired. While it is premature at the present time to recommend the employment of pure testicular vaccine for the protection of human beings against variola, it would be advisable if all calf lymph placed on the market were freed from bacterial contamination by filtration through porcelain and preserved with 0.5% phenol at a low temperature.

PUBLIC ENLIGHTENMENT IN REGARD TO VENEREAL DISEASES.

The policy of educating the public concerning the dangers of infection has long since become established, and responsible bodies of men now pin their faith on the deterrent action of solemn warnings issued by well-informed persons. The object of this form of enlightenment is to induce persons endowed with understanding to take reasonable care of their bodies and to exercise precaution in their dealings with their neighbours. It is quite obvious that the vicious and the mentally deficient cannot be approached in this manner, and it is extremely doubtful whether the naturally careless can be influenced by it. Two methods are usually adopted in the message to the people. The one is the inculcation of fear of the disastrous effects of the various infections; the other is an appeal to the intelligent desire of sane people to contribute to the public welfare. The former method is a dangerous one, unless it be applied with extreme care to selected individuals.

In these circumstances it is not surprising to find that the Commissioner of Public Health of Western Australia, Dr. R. C. Everitt Atkinson, has recognized considerable difficulty in dealing with this aspect of the venereal disease problem. On July 21, 1918, he was the chief speaker at a public meeting convened for the purpose of considering the advisability of establishing a National Council for Combating Venereal Diseases in the State. The Acting Mayor of Perth, Councillor W. Simpson, presided, and a large number of persons, representative of the various interests and organizations, were present. The Commissioner explained that he, in his official capacity, felt the need of the co-operation of a council to relieve him of the greater part of the work of education. He gave a short account of the work which was being accomplished by the national councils in Great Britain. The officers of his Department would be available to instruct the members of the council or other groups of persons desirous of qualifying for the task of teaching the public. He advocated that the education should be given largely by non-medical persons. In the first place, he considered that parents should be in a position to impart the information to their children, and, consequently, the need for careful instruction became apparent. Next, the teacher of children often stood *in loco parentis*, and in order that the task of guiding children might be judiciously carried out, it was necessary that he should possess correct knowledge. He thought that the clergy and the public bodies could be of great value in connexion with the education movement. He hoped that a scheme would be formulated which would enable them to impart the right knowledge to the young, so that the girl and the boy would not be dependent for their information upon pernicious literature and evil associations, that the young woman might realize that marriage held other dangers than those of childbearing, that the young man might learn that celibacy before marriage was no less important, desirable and possible for men than for women, and that the public might know how much these diseases made for degeneracy and race suicide.

It was resolved that a committee be appointed to draw up a constitution for a National Council to Combat Venereal Disease. Dr. Everitt Atkinson was elected Chairman of this committee, and Professor Dakin, Archbishop Riley, Archbishop Clune, three other gentlemen and four ladies were elected the members.

In his speech on opening the State Parliament on July 30, 1918, His Excellency the Governor of Tasmania referred to the fact that the *Hospitals Bill*, which had been introduced during the previous session, had not been finally dealt with, and would consequently be submitted for consideration during the present session. Among the other measures which would be submitted was a Bill to amend the *Medical Act, 1908*.

Abstracts from Current Medical Literature.

PATHOLOGY.

(40) Transmission of Rabies.

A. Lanfranchi and F. Lenzi have observed the passage of the virus of hydrophobia from the mother to the fœtus in the dog (*C.R. Biol., Paris,* April 27, 1918). A pure-bred bitch developed rabies after having been bitten by an affected animal some months previously. It died after a few days' illness. The autopsy was made immediately after death, when seven full-term fœtuses were found in the uterus. The corpuscles of Negri were found in films and sections made from the tissues of the mother, but not in those from the embryos. The spinal cords were removed with adequate precautions from the bitch and from the fœtuses. With this material injections were made into rabbits, some into the subdural space, others into the anterior chamber of the eye, and others into different muscles. The results of the inoculations have been positive with material from the eight spinal cords. All the rabbits have died with characteristic symptoms of hydrophobia. Every necessary precaution was taken to ensure the correctness of the diagnosis. Particular note was taken of the occurrence of the increased temperature, which has been observed by Babes. The rabbits were weighed before the inoculation and after death, to record the loss of weight. The virus has been transmitted through three series of animals in succession. The authors report that they have observed no attenuation of the virus by its passage through the placental filter.

(41) Streptococci in Wounds.

C. Levaditi gives a brief summary of his investigations into the influence of the presence of streptococci in war wounds (*C.R. Biol., Paris,* April 27, 1918). He finds that streptococci are the chief pathogenic agents preventing the primary and secondary union of war wounds. While wounds containing staphylococci show secondary union in 100% of cases and those with colon bacilli in 60%, wounds, infected with streptococci, yield a favourable healing in only 7.5% of the cases. In wounds, infected with streptococci and sutured immediately, no union has been observed in any case. As far as secondary union is concerned, a distinction is observed between wounds freed from streptococci by Carrel's treatment or by vaccination, and those not treated before surgical interference. Wounds of the first group all unite, while the results in the second group depend on the employment of vaccination subsequent to the surgical treatment. Healing has taken place in 62% of wounds of the patients vaccinated, as against 15% in the non-vaccinated. The author has studied 44 races of streptococci isolated from recent wounds. They have been divided into two groups, *Streptococci pyogenes typici* and *Streptococci pyogenes atypici.* Those of the first group give rise to hæmolysis, show pathogenic virulence and act little upon mannite. Those of the second group do not cause hæmolysis, possess very little virulence, and show aberrant reactions with the carbohydrates. The author has come to the conclusion that the epidermis is the main source of contamination. It would appear, however, that infection with streptococci occurs in only a small proportion of those patients in whom chains of cocci can be found on the skin. The author has endeavoured to ascertain whether those patients who become infected with streptococci, exhibit lessened resistance to the micro-organisms. For this purpose he employs the intradermal reaction consequent upon the cutaneous injection of streptococci killed by heat. A papule, surrounded by a zone of erythema, appears at the site of inoculation. These injections are made into the patients with infected wounds and into healthy persons. Each day a tracing is taken of the margins of the area of the reaction and the hyperæmic area is measured with a planimeter. The daily areas are added together and a ratio established between the surface of reaction in the patient and in the control. This ratio will be equal to unity when the defensive mechanism of the patient is of average potency. The author has found in 70% of the infected patients that the index figure lies between 0 and 0.5. He concludes that the invasion of the micro-organism is favoured by pre-existant sensitiveness, due to more or less deficiency in the means of defence against streptococci.

(42) Primary Tuberculosis of the Faucial Tonsil.

In an attempt to ascertain the frequency of primary tuberculosis of the faucial tonsil and its relation to other tuberculous affections, especially to tuberculosis of the cervical lymph glands, Mitchell (*Journ. Pathol. and Bacteriol.,* 1917, 21,248) examined a number of tonsils removed from children affected with tuberculosis of the upper deep cervical glands, and of hypertrophied tonsils removed from children with no clinical evidence of tuberculosis of the lymph glands or other structures. The methods employed were histological examination of the tonsils and inoculation of tonsillar tissue into guinea-pigs. There were 106 cases in which the cervical glands were tuberculous. Of these, 51 cases were in children under 5 years of age, 49 in children between 5 and 15 years, and 6 were in adults. In 41 cases the tonsils were undoubtedly tuberculous, and of these 38 were in children. Inoculation tests in 92 cases gave positive results in 20; in 16 the bovine type, and 4 the human type of bacilli was recovered. In 100 cases, where the tonsils were removed for chronic hypertrophy, 5% yielded positive results, when inoculated into guinea-pigs, 4 showing the bovine bacillus, and 2 the human, while in 3 the type was not determined. The following are the author's conclusions: (1) Tuberculosis of the upper deep cervical glands developes from a primary focus in the faucial tonsil much more frequently than is generally supposed. (2) Primary tuberculosis of the tonsils can be recognized only by the aid of the microscope and by inoculation experiments. The lesions are found immediately under the surface epithelium and near the mouth of the lacunæ, and in relation to the deeper portions of crypts or deep in the tonsils close to the capsule. The first mentioned site is the commonest. (3) Hypertrophied faucial tonsils are rarely the seat of primary tuberculosis; they are more frequently involved in cases of tuberculous cervical adenitis. (4) Experimental results indicated that in Scotland primary tuberculosis of the faucial tonsils must be attributed to the drinking of milk from tuberculous cows, rather than to the inhalation of the tubercle bacillus conveyed by dried sputum or moist spray of a consumptive. (5) Bovine and human types of tubercle bacilli are present in the crypts of a small percentage of children without demonstrable tuberculous lesions either in the tonsils or elsewhere. (6) Tonsillectomy is essential in all cases of tuberculous cervical adenitis in children. (7) The prognosis is very slightly influenced in children in whom the faucial tonsils and cervical glands are simultaneously affected. (8) The difficulties associated with the reform of the milk supply and the long period which must elapse before it becomes possible to obtain milk free from tubercle bacilli, demand some means of rendering milk safe. The only method is sterilization by boiling.

(43) Isolation of Streptococci.

Olmer and Bach describe a rapid method for detecting the presence of streptococci in war wounds (*C.R. Biol., Paris,* April 27, 1918). Their description is based on the application of the method to the bacteriological examination of 500 wounds. They employ media containing natural proteins, such as ascitic broth and others containing sugar, which, up to the present, have been less employed. In addition, they make slope cultures on peptone agar and sowings into broth. In regard to the method of using their tubes, not more than one cubic centimetre of a liquid is placed in a tube, while, on solid media, one or two loops of the inoculation material is placed in the water of condensation and distributed over the surface. In three to six hours fine chains of streptococci can be observed. The appearance of these chains precedes any cloudiness in broth or of visible colonies on solid media. During the first few hours the streptococci appear alone to multiply. Later other germs make their appearance. By this simple method the early diagnosis of the presence of streptococci can be established. Sub-cultures can be readily made after a few hours' incubation.

PÆDIATRICS.

(44) The Hypertonic Infant.

In the teaching of infant feeding, stress has been laid on two factors: the food and the infant. The food has been studied from many angles, with the result that there is available an ample and satisfactory variety adaptable to most cases. The infant, too, has been studied from many angles; but few serious attempts have been made to study the possibility of altering the infant's reaction towards food, when it is found impossible to adapt the food to it, despite the fact that idiosyncrasies have been noted and differentiated. Haas (*Amer. Journ. of Dis. of Children*, May, 1918) confines himself to the consideration of one group of cases, whose adaptation to food would seem to have been accomplished through the adjustment of the vegetative system. In this group are to be found: (*a*) the colicky baby; (*b*) the sleepless baby; (*c*) the restless baby; (*d*) the irritable baby, which does not prosper on any food, although there is neither gastric nor intestinal indigestion; (*e*) the baby suffering from pyloro-spasm, accompanied by vomiting, usually projectile in type; (*f*) the constipated baby. Without exception these infants are of the spasmophilic diathesis, and usually with a neurotic ancestry. Their weight is normal in the beginning, but, after some months, it is subnormal and they become rachitic. They are, without exception, hypertonic; they can raise their heads at birth and grasp objects firmly, and can support themselves on their legs at the end of six or eight weeks, if held up. An abdominal examination often reveals active gastric or intestinal peristalsis. The infant is unusually alert, it cries more or less constantly, rarely sleeps, except for short periods, and is not happy. Such cases present, in order of importance, (1) vomiting, which is characteristically irregular, often with visible peristalsis; (2) crying, more or less constant and violent; (3) insomnia; (4) constipation, resistant to ordinary laxative and dietetic treatment, and distinctly spastic in type, the stool being soft after it has once started; (5) cold extremities, with pallor, cyanosis and subnormal temperature; (6) underweight, the degree depending on the age of the child. The treatment, after regulation of the diet, hours of feeding, etc., consists in the exhibition of atropine in sufficient doses. With each feeding one drop, increased gradually perhaps to four, of a solution of atropine (1: 1,000) is given. The increase in dosage is made every 48 hours, and if the diagnosis is correct, improvement will set in almost immediately. With the disappearance of symptoms the drug is gradually reduced in amount and finally discontinued, though it may be necessary to readminister it, should a relapse occur. The earliest symptom of the physiological effects of atropine in infants is a flushing, which gives them the appearance of having fever. Fever may actually exist, but is usually not high. Dilatation of the pupils and slight puffiness of the lids are also seen. No ill results follow these large doses, where the diagnosis is correct, but in unsuitable cases hyperpyrexia, abdominal distension, flushing, restlessness, vomiting and diarrhœa may occur. The diagnosis of the hypertonic infant depends on the combination of vomiting, insomnia, crying, constipation and sometimes subnormal temperature, together with the presence of hypertonicity and the absence of faulty feeding. Atropine, administered in full dose, will confirm the diagnosis.

(45) The Wassermann Reaction in the Newly-born.

Yerington (*Archives of Pediatrics*, January, 1918) has analysed the results of extensive investigations conducted over a series of four years in an obstetric clinic into the frequency of syphilitic infection of mothers and infants. There were 1,021 deliveries. Wassermann tests were carried out with the blood from the umbilical cord and from the heel of 450 infants. In some infants blood from both sources were used. In addition this test was employed in connexion with the blood of the mothers in 168 instances and of the fathers in 19 instances. Other means of examination were also employed, including the pathological investigation of the cords and placentæ. Of the 1,021 infants, 480 showed some indications of lues. The blood from the cord of 258 infants, with some signs suggestive of syphilis, was examined and a positive or partial Wassermann reaction was obtained in 204. Blood from the heel was tested in 150 of these infants and it yielded a positive reaction 64 times. A positive reaction was obtained with specimens of blood from either source, and in 33 of these instances it was positive in both. A positive or partial Wassermann reaction with the blood from the cord was associated with a negative reaction with the mother's blood in 101 cases. A positive reaction with blood from the heel was associated with a negative reaction with the mother's blood 28 times. On the other hand, the mother's blood yielded a positive Wassermann reaction 29 times, and in 28 the reaction with the blood of the infant was also positive. The placentæ were examined 783 times, and 18 revealed luetic changes. These 18 placentæ were associated with a positive Wassermann reaction with the mother's blood in 7 and a negative reaction in 11. The author considers from these data that the diagnosis of syphilis in an infant under 10 days cannot be made with certainty on the basis of a positive Wassermann reaction with the blood derived either from the cord or the heel. He finds that the reaction is more valuable when the blood from the heel is used than when the blood is obtained from the cord. He is inclined to regard a positive reaction obtained with the blood from the heel as a danger signal. He is not prepared to determine whether a positive Wassermann reaction obtained with the blood of the mother and also with the blood from both cord and heel can be regarded as definite evidence of syphilis in the infant. From the studies carried out on placentæ it appears that an active syphilitic process may be in progress while the mother's blood yields a negative response to the Wassermann test. The main value of the various tests is the indication given as to which infants should be kept under observation. He holds that in suspicious cases repeated testings and continuous treatment are essential to the eradication of the late manifestations of the disease.

(46) Cervical Glandular Enlargement in Children.

Gunson has studied three types of condition involving cervical glandular enlargement (*British Journ. of Children's Dis.*, October-December, 1917). In the first the adolescent, the patient complains of lassitude and breathlessness, and the signs include tonsillar enlargement or faucial injection, deficient chest expansion and poor general development. In the second class, the patient is a child of 6 to 12 years, and suffers from poor nutrition, anorexia and gastro-intestinal disturbances, frequently accompanied by bronchial catarrh. The third type is met with in scarlet fever patients. The author concludes that glandular enlargement is evidence of an infective process situated in the lymphoid tissue specifically drained by such glands. The flow of lymph from the infected tissue is in one direction only, and each gland drains a definite and restricted area, the tonsillar lymphatics, for example, passing directly to the "tonsillar" gland, situated just behind the angle of the jaw. In the majority of cases of chronic cervical glandular enlargement the associated infection is simple in character, and quickly responds to appropriate treatment. The glandular enlargement subsides as soon as the infective process is removed. Fourteen per cent. of scarlet fever patients, however, on discharge from hospital, presented evidence of persisting throat infection (gland enlargement) in spite of energetic treatment. Persistent cervical glandular enlargement in the course of scarlet fever was found to be associated with severe constitutional symptoms and complications which included nephritis and arthritis. When chronic glandular enlargement persists in spite of local treatment of the throat, the lymphoid tissue involved (*e.g.*, the tonsils) is frequently the seat of a tuberculous lesion, the glands being secondarily infected. Simple chronic glandular enlargement in young children is associated with malnutrition, and alimentary and respiratory disorders. When the glandular enlargement persists into adolescence, or developes, the patients suffer from apathy, exhaustion, and dyspnœa on slight exertion. The symptoms are sufficiently severe to suggest cardiac disease, which careful examination fails to reveal. This association is so important that it indicates early and complete treatment directed to the infective focus in all cases of cervical glandular enlargement, including operative measures, when required.

British Medical Association News.

SCIENTIFIC.

A meeting of the Western Australian Branch was held at the Perth Public Hospital on June 19, 1918, Dr. R. C. Everitt Atkinson, the President, in the chair.

Dr. G. W. Barker demonstrated a patient for Dr. T. Ambrose. The patient had been sent from the country for treatment of a fracture-dislocation of the elbow-joint. Dr. Ambrose had resected the head of the radius. A series of skiagrams had been taken, both before and after the operation. These pictures were exhibited.

Dr. W. Trethowan thought that the arm should not be interfered with for some time. Later an attempt should be made to resect the bridge of bone, and possibly to excise the joint. Failing this, the limb might be fixed after further flexion of about 10° or 15°.

Dr. S. J. Cantor showed a temperature chart of a case of enteric fever. The chart revealed three relapses. A dose of anti-typhoid vaccine had been given during the second relapse. A preliminary injection of 0.3 c.cm. failed to produce a reaction. A week later a second full dose was administered. Following this dose there was a marked reaction, and improvement in the patient's condition was noticed later.

Dr. G. W. Barker presented a patient who had been operated on seven years before by Dr. Moore in Melbourne. The whole of the front of the left side of the chest had been removed for sarcoma of the lungs and pleura. There had been no recurrence. The patient was in hospital for the treatment of another condition.

The President welcomed Colonel A. T. White on his return from active service. Colonel White then delivered an interesting and instructive lecture, and showed several souvenirs, including a war map which he had used at the front.

Dr. W. Trethowan thanked Colonel White for his address, and tendered on behalf of the Branch congratulations on his long period of service and on the honour that had been bestowed on him.

The Council of the Tasmanian Branch of the British Medical Association has for some little time had under consideration the question raised by the proposal on the part of the Queenstown Hospital Union to fill a vacancy created by the absence of Dr. J. Love, who has accepted a commission in the Army Medical Corps for service abroad. Dr. G. J. Walker, of Queenstown, made arrangements with Dr. Love to carry on his practice during his absence. The Branch therefore considered that the vacancy should be filled only temporarily, in order that Dr. Walker might not suffer for his loyal action. After some correspondence on the matter, the Board of the Union has acceded to the request of the Tasmanian Branch to limit the appointment for the period of the war. The Branch Council is endeavouring to assist the Hospital Union to obtain a suitable temporary medical officer.

Medical Societies.

THE OPHTHALMOLOGICAL SOCIETY OF NEW SOUTH WALES.

A meeting of the Ophthalmological Society of New South Wales was held in the Sydney Hospital on May 1, 1918, Dr. E. A. D'Ombrain, the President, in the chair.

Dr. Guy Antill Pockley, the Honorary Secretary, proposed, and Dr. D'Ombrain seconded, on behalf of the Council, the following motion:—

> That, to facilitate the reporting of the criticisms of members on papers and cases, in the opinion of the members it is essential for those members reading papers or notes on cases to either hand in a written copy of the papers or notes to the Secretary at the time of the meeting, or else the published report would be made up from the Secretary's notes taken at the time.

The motion was carried unanimously.

Dr. Cyril Shepherd showed a patient on whom tarsectomy had been done about six years before. The girl came to the Out-patient Department at the Sydney Hospital a week before, wanting glasses. She stated that she had had double tarsectomy performed by him at another hospital about six years before, but he was unable to obtain the notes of the case. His object in showing the patient to the members was to demonstrate the perfect cosmetic result and the complete cure of the trachoma and ingrowing lashes, for which the operation had been performed. To obtain complete eversion of the cilia, it was necessary to make the incision through the cartilage as close as possible to the lid margin, about two millimetres usually, but the situation was indicated by a marked cicatricial line. To obtain the cosmetic result, it was necessary to make this incision parallel to the lid margin throughout its entire length. Furthermore, the suture must be the lacing one, and not three or four interrupted sutures, as originally described by Beisemath. When the operation was performed for the radical cure of active trachoma, the affected conjunctiva could be safely removed up to the fornix, provided the rest was well undermined.

He reminded the members that another girl, a little older than the one now under review, had been shown to members several years after a tarsectomy for radical cure of trachoma. In her case an equally good result from a cosmetic and curative point of view had been achieved.

Dr. R. H. Jones congratulated Dr. Shepherd on the excellent cosmetic result in this case. He did not practise tarsectomy for trachoma as a rule, as he had seen a number of very bad relapses following this procedure. He saw a very unusual sequel to a case of tarsectomy a few days previously; the technique of the surgeon must have been faulty. The patient had complained of irritation, and, upon examination, he had found that a lash had been transplanted about eight or nine millimetres from the lid margin, and was growing between the lid and the globe.

Dr. J. C. Halliday stated he had also seen a great number of relapses, which were intractable to treatment.

Dr. Guy Antill Pockley thought the operation was invaluable to secure cosmetic effects in old, non-active cases where there was ptosis. It was particularly essential in monocular trachomatous ptosis. Some eversion could be produced where there was entropion and small degrees of trichiasis, but he did not think it compared with Snellen's operation in cases of trichiasis and distichiasis. He had seen such hopelessly intractable cases of pannus following tarsectomy when done in the active stage of the disease that he never performed it except in old, cured cases.

Dr. Shepherd, in his reply, said that he had also met with a great number of relapses after tarsectomy. He thought it was a very good operation in active trachoma, but it was necessary to make the incision through the cartilage as close as possible to the lid margin, in order not to leave any granulations. He did not think it should be done in cases where there was active trachoma on the retrotarsal fold until granulations in this situation had been cured by other means. He thought it was an excellent operation when there was an acute pannus, but before commencing the tarsectomy in these cases he inserted a speculum and performed a peritomy, and then proceeded to do the tarsectomy in the ordinary way. He thought this helped, both as regards direct treatment of the pannus and also in allowing greater motility of the conjunctiva when it was being drawn down and sutured to the lid margin.

Dr. E. A. D'Ombrain reported the case of a woman, aged 32, who had been struck on the right eye eleven months before, there being no rupture of the cornea. The lens had been dislocated regularly into the anterior chamber. There was no iris visible. The eye had the peculiar appearance of a very widely dilated pupil. The present condition was that the lens was clear, and that there was some fundus change (macular), the vision being quite good for all purposes. He had never seen a similar case. He read some passages from Collins and Mayou's book (page 245), in which the condition was described as an expected one when the lens was dislocated forwards.

Dr. J. C. Halliday thought that the lens was dislocated forwards, and Dr. J. J. Kelly thought he could detect early opacities.

Dr. E. A. D'Ombrain reported a second case of a girl, aged 12, with congenital dislocation of both lenses in the oblique position. She had given a history of having always been short-sighted. No change in vision had occurred. Her

vision equalled less than $^6/_{60}$ in each eye. The tension was not increased. He wished to know the opinion of those present as to the correct form of treatment, whether it should be left alone, or whether an attempt should be made to remove one or both lenses by needling or extraction.

Dr. R. H. Jones thought that if the child had any useful vision, operation was not indicated, as a scoop extraction would be risky, and, in needling, it would be very hard to immobilize the lens sufficiently for the operation.

Dr. J. C. Halliday concurred with this view.

Dr. Cyril Shepherd recalled a similar case, in which a colleague had extracted the lens. This treatment had not been very successful, as a large amount of vitreous had been lost.

Dr. Guy Antill Pockley recalled a case in which he had performed scoop extraction on both eyes successfully 12 months before. In this case the lens was in the anterior chamber and the tension was + 3. He had seen an ophthalmic surgeon needle a laterally displaced lens, when a tremendous rise of tension had followed, and it was thought advisable to perform a curette evacuation a few days later. This proved difficult, more vitreous than lens matter being evacuated; the result was very bad.

Dr. J. C. Halliday showed a boy, aged 12 years, with swollen white discs. He raised the question whether this was a case of congenital pseudo-optic neuritis. The vision in the right eye equalled $^6/_{12}$; his health was good. He wanted to know the opinion of his colleagues as to whether the condition was a congenital or a pathological one.

Dr. R. H. Jones considered the case was a congenital one, as he could see nothing in any way obscuring the vessels, which he thought were normal in every respect.

Dr. J. J. Kelly thought the whiteness of the disc was due to opaque nerve fibres, which he had seen in another case covering the whole of the disc.

Dr. E. A. D'Ombrain stated that opaque nerve fibres had never been recorded on more than one side of the disc. He thought this case was not one of opaque nerve fibres, for this reason, and because the termination of the white area had not the typical "mare's tail" attenuations.

The consensus of opinion was that it was a congenital condition.

Dr. Guy Antill Pockley apologized for exhibiting so many cases (and some of them not very obscure ones), but as it was his duty as Secretary to see that there was material for the meeting, and as he had only been notified by one member that he was showing a case, at the eleventh hour he collected all the cases which he thought sufficiently interesting for discussion from his own practice.

Case I.—He saw this patient, a female, married, and middle-aged, one year and eight months before. She had a typical monocular episcleritis. This became brawny and nodular, until it was visible through the lid. Finally, erosion of the apex occurred, and the nodule extended over a very large area. The present condition was a large, nodular, scleral thickening, with a flattened top. The centre of this eroded right down to the sclera, which was bare. There were no symptoms, except those of irritation, and no fundus changes.

The Wassermann reaction was repeatedly negative. No reaction was obtained to diagnostic tuberculin injections. He thought it started as a typical scleritis; but now it did not look like one. He had never seen or heard of anything like it; the only possible guess he could make was that it might be an unusual form of neoplasm. He was hopelessly at sea as to diagnosis, and would like the opinion of those present.

All the members present stated that they had never seen any similar condition, and that they were unable to hazard a guess at diagnosis.

Dr. Halliday suggested trying the application of radium.

A request was made that the patient be re-exhibited at the next meeting.

Case II.—The patient was a boy, aged 12 years and 9 months. His mother brought him on account of a slight squint. He had no perception of light in one eye. There was a fibrous membrane about half way back in the vitreous, extending from the whole circumference of the globe above to about the centre of the globe in the vertical meridian, where it divided into two attenuated ends, which formed an arch in the middle of the eye. One of these ends had been dragged away, and had detached the retina below. A normal-looking disc could be seen through this arch. It was the most striking case of fibrous tissue in the vitreous that he had ever seen, and was presumably an organized hæmorrhage. There was no history of injury.

The case was produced merely as an exhibit.

Dr. Guy Antill Pockley also showed two cases of the palpable form of vernal catarrh, the first being a case of two years' standing, absolutely typical, which he brought as a contrast to the second case.

The second patient had come three years previously, with trachoma and pannus. This had cleared up with treatment in a normal manner. She had been free from symptoms except for a month or two in the autumn of the year, when she had complained of great irritability. No evidence of vernal catarrh was observed until about a month before, when three or four flat, hard granulations appeared in a group on the upper lid of one eye. These had increased in number to about a dozen, and during the last week one large and one small one had appeared in the other eye. He thought that it was a case of vernal catarrh also, but would like to have this opinion confirmed. He wished to know if anyone had had any success with radium treatment for this condition. It had failed in his cases.

The opinion expressed was that both cases were of vernal catarrh, though there was some doubt about the latter.

Dr. Jones thought the most valuable symptom in diagnosing this condition was the periodical attacks of intense irritability.

Dr. D'Ombrain quoted from Collins and Mayou's book in regard to the presence of eosinophile cells in the conjunctival secretion, and suggested a microscopic examination.

Another exhibit was a case of a double coloboma of the iris and choroid in a girl, who was a member of a very large family; there was no history of any eye trouble in the family, nor in either of the parents' families.

THE PATHOLOGICAL CLUB OF NEW SOUTH WALES.

The annual meeting of the Pathological Club of New South Wales was held at the Government Microbiological Laboratories, Macquarie Street, Sydney, on July 25, 1918.

The following were elected office-bearers and member of the committee for the ensuing year:—

President: Dr. E. S. S. Stokes.

Honorary Secretary and Treasurer: Dr. P. E. Walton Smith.

Retiring President (as third member of the committee): Dr. C. E. Corlette.

Dr. C. E. Corlette read an interesting paper on "Heat Loss During Ether Anæsthesia."

Dr. Temple Grey detailed the results of his investigations into the impurities of anæsthetic ether.

Dr. J. B. Cleland exhibited (*i.*) a specimen of bovine actinomycosis, (*ii.*) sections of the medulla of a sheep inoculated with the virus of the disease which was recently epidemic at Bourke and elsewhere in New South Wales and Queensland, (*iii.*) the cast of an œsophagus with the muscular coat after hydrochloric acid poisoning, (*iv.*) human aspergillosis, (*v.*) a stapelia flower on which flies had laid their eggs.

Dr. Walton Smith showed an eye removed from an infant, the seat of an unusual form of glioma. He also showed sections of the tumour.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A meeting of the Senate of the University of Sydney was held on July 1, 1918, at University Chambers, Phillip Street, Sydney.

A letter was received from Professor Wilkinson (Professor of Architecture), stating that he expected to arrive in Sydney on July 30, 1918.

On the recommendation of Professor Welsh, Mr. Leslie Utz, M.B., Ch.M., was appointed to carry out pathological research on venereal diseases at the University, under the Commonwealth Government grant.

The degree of Ch.M. was conferred *in absentia* upon the following: A. R. Hudson, M.B., and J. Young Wai, M.B.

A letter received from the Department of Defence, stating that a cable message had been received from the Secretary of State for the Colonies to the effect that the Army Council offers temporary commissions in the Royal Engineers to graduates in engineering, was referred to the Professor of Engineering.

On the recommendation of the Professor of Anatomy, Dr. H. R. G. Poate and Dr. L. G. Teece were appointed half-time Demonstrators in Anatomy.

On the recommendation of the Joint Committee for Tutorial Classes, Mr. H. V. Evatt, M.A., LL.B., was appointed Probationary Tutor in Social and Political Philosophy.

On the recommendation of the Faculty of Arts, it was resolved that the regulations governing the award of the J. S. D'Arcy Annual Memorial Prize be those as submitted by the donors, the Directors of the University Club, *viz.*:—

That the prize be given to the evening student obtaining the best pass in any two of the five following subjects (to be Course III.) taken for a degree, *viz.*, Latin, French, philosophy, English and history; (*ii.*) that only pass results be taken into account in deciding the prize, but the class essays for honours be estimated by the professor as if they were class exercises for pass; (*iii.*) that pass results be compared on a standardized marking; (*iv.*) that the term "evening student" shall mean any male or female student who has attended evening lectures for the whole B.A. course.

Naval and Military.

CASUALTIES.

The 420th and 421st lists of casualties have been issued to the public on August 2 and 5, 1918, respectively. The lists are of average size, and have the peculiarity that relatively few commissioned officers are named in them. The number of casualties sustained by commissioned officers represents only about 2.4% of the total casualties. There are none of medical officers attached to the Army Medical Corps.

APPOINTMENTS.

The following officers have been appointed members of the Permanent Medical Referee Board, under the provisions of the Instructions for the Control of Invalids, issued with the Military Order 186/1917:—

Second Military District—

Major E. H. Binney, Australian Army Medical Corps Reserve (part time). Appointed March 4, 1918.

Third Military District—

Captain J. F. Agnew, Australian Army Medical Corps (full time). Appointed March 11, 1918, to May 5, 1918.

Major W. B. Craig, Australian Army Medical Corps (full time). Appointed May 6, 1918.

Fourth Military District—

Honorary Colonel W. T. Hayward, C.M.G., Australian Army Medical Corps (full time). Appointed April 2, 1918.

Honorary Lieutenant-Colonel R. S. Rogers, Australian Army Medical Corps (full time). Appointed March 15, 1918, to April 1, 1918.

Fifth Military District—

Honorary Major J. Kenny, Australian Army Medical Corps Reserve (part time). Appointed May 29, 1918.

Honorary Major G. W. Baker, Australian Army Medical Corps (part time). Appointed July 1, 1918.

Honorary Major J. K. Crouch, Australian Army Medical Corps Reserve (part time). Appointed June 7, 1918.

THE SANATORIUM FOR TUBERCULOUS PATIENTS IN WESTERN AUSTRALIA.

At a recent meeting of the Kalgoorlie Municipal Council it was determined that the Colonial Secretary of Western Australia be requested to appoint a committee of twelve medical practitioners to investigate the question whether the treatment of pulmonary tuberculosis could be carried out to better advantage at Wooroloo, or in the district of the gold fields. The matter was referred to Dr. Everitt Atkinson, the Commissioner of Health, and this officer, after consultation with the resident medical officer at the Wooroloo Sanatorium, submitted a report. The Minister has determined not to give effect to the recommendation of the Kalgoorlie Municipal Council, on the ground that he did not feel justified in asking twelve medical practitioners to devote the time necessary for such an enquiry. A very large proportion of the medical practitioners in the State were on active service, and the remainder were working at high pressure. No less than £150,000 had already been spent on the building and equipment of the Wooroloo Sanatorium, and he thought that a more exhaustive trial of its efficacy than could be afforded by the three years' experience already gained would be required before he would consent to an investigation of the two sites. Dr. Atkinson had reported that the site at Wooroloo satisfied the requirements for a sanatorium for the treatment of persons suffering from pulmonary tuberculosis. The elevation, the freedom from dust, the distance from the sea coast, the protection from very heavy winds, the absence of excessive rainfall and fogs, and the provision of transport facilities were strong points in favour of the site. On the other hand, there were certain disadvantages militating against the site suggested at Kalgoorlie.

Special Correspondence.

(By our Special Correspondent.)

LONDON LETTER.

The Care of School Children in London.

At the meeting of the Education Committee of the London County Council held on February 13, 1918, the Central Children's Care Sub-Committee reported on the physical condition of children in London schools, to which, during the war, close attention has been given. The report states:—"The school medical officer's annual reports since 1914 have given the results of medical inspection based on an annual examination of some 200,000 children. He has pointed out that there has been an all-round improvement in the physical condition of the children during the war, and that the number of children found at medical inspections to be under-nourished, has greatly decreased. The results for 1917 have now been presented by the school medical officer, and they show that the improved conditions have been fully maintained. During the third term of 1917 the inspection of all the entrant children, which had been discontinued from the beginning of 1916, was again resumed, and the results of this term's examinations are the best that have ever been attained; the percentage of children found in a poorly-nourished condition being considerably less than half the percentage found in 1913, the year before the war."

The committee approved the proposal of the sub-committee to add 50 to the appointments of "women of good general education" for the instruction of children under five years of age. Of the 200 authorized 162 are actually at work, and, according to reports of inspectors and head-mistresses, the experiment has met with satisfactory results.

The Building Sub-Committee reported, in connexion with the use of London County Council schools as shelters on air raid nights, that, as an experiment, permission was given to the police authorities to arrange for sand-bags to be provided at two London County Council schools, the work being carried out under the supervision of the local borough council, and without cost to the County Council. On inspection, the work was found to have been carried out satisfactorily, and the lighting of the rooms was not seriously affected. At the request of the police, it was

decided to give permission for the sand-bagging of such schools as the police selected on approved lines. The police had submitted a list of schools at which they were of opinion that the provision of sand-bags was necessary, and the work was in progress.

University Education in Wales.

The final report of the Royal Commission on University Education in Wales was issued on March 19, 1918.

The Commission set forth the following conclusions at which they have arrived:—

The existing University organization has come to be felt as exercising an influence which hampers the free academic development of the constituent colleges, and as inadequate to the growing needs of Wales. The disruption of the present University into two or more universities is undesirable, and there should continue to be a national University of Wales. The existing organization requires to be remodelled in such a way as to combine effective supervision and co-ordination from a national standpoint with an increased degree of local autonomy in the colleges. The national University should confer degrees and exercise a general direction and control over education of a university character in Wales and Monmouthshire, in the interests of the Welsh people as a whole. The main part of the University's work should be done through its constituent colleges, but in some matters it should have power to make such supplementary provision as it considers necessary. The University Court should act as a parliament of higher education, and its main function should be to lay down the broad lines of university policy to be worked out by its executive, the University Council. The present University Senate should be replaced by a smaller body, to be called the Academic Board, of a size which would enable it to be brought into close personal relations and actual conference with the University Council. The proposed national medical school should be organized as an independent constituent college of the University, governed by a council and senate of its own. A better organization of Celtic studies is needed, and to this end it is essential that the University should co-operate with the National Library and National Museum. A university board of Celtic studies should be set up, composed of persons specially skilled in some aspect of those studies. It is also recommended that the University should establish a music directorship of sufficient value and importance to secure the services of a musician of acknowledged eminence.

Venereal Disease in the Army.

A new Defence of the Realm Regulation (40c) has been made, to protect His Majesty's forces from the danger of venereal disease. It is as follows:—

No woman who is suffering from venereal disease in a communicable form shall have sexual intercourse with any member of His Majesty's forces, or solicit or invite any member of His Majesty's forces to have sexual intercourse with her.

If any woman acts in contravention to this regulation she shall be guilty of a summary offence against these regulations.

A woman charged with an offence under this regulation shall, if she so requires, be remanded for a period (not less than a week) for the purpose of such medical examination as may be requisite for ascertaining whether she is suffering from such a disease as aforesaid.

The defendant shall be informed of her right to be remanded as aforesaid, and that she may be examined by her own doctor, or by the medical officer of the prison.

In this regulation the expression "venereal disease" means syphilis, gonorrhœa, or soft chancre.

Correspondence.

A HYPOTHETICAL CASE.

Sir,—Will you kindly give me your view of the ethical rights or wrongs of the following case: A is called out at night to see a patient, who is said to be bleeding profusely. The patient's husband represents it as a grave emergency, and states that the regular medical attendant, B, has been sent for twice, but is not available. A sees the case, and, as he is about to leave, impresses on the husband the necessity of sending again for B. Just then B enters. A approaches B and explains his presence. B stalks past him with his nose in the air, and makes an inarticulate sound, which might be called a grunt or a snort. B's demeanour is what one might expect from a butcher's boy. Next day A writes to B, explaining the circumstances again, and asks if B thinks A has transgressed against the ethical code. B does not reply.

A and B are both members of the B.M.A. A has never deserved or gained the censure of the Association. He knows no reason why he should be treated as a pariah. It is horrible to see the jealousies of the petty tradesman imported into medical practice. It makes decent men wish they were grocers or tinkers instead of doctors.

Yours, etc.,

"INQUIRER."

[The case, as set out by our correspondent, leaves little room for two opinions. It is the duty of a medical practitioner, called in to attend a patient of another practitioner in an emergency, to render the necessary aid to the patient, and to explain the circumstances as soon as possible to the usual attendant. A is stated to have done this. The duty of the usual attendant toward his colleague is to recognize the emergency and to behave in a courteous manner toward him. B is stated to have neglected his duty in this regard. It must, however, be understood that the *Journal* can only give an opinion on a hypothetical case. Before this could be done in an actual case, both parties to the dispute should be given an opportunity to state the case. The proper tribunal for the adjudication of charges of unethical behaviour is the Branch of the British Medical Association in whose area the members reside.]

NURSES AND RADIOGRAPHY.

Sir,—The fact that you invite discussion concerning the suggestion made by Dr. Herschel Harris implies, I think, that you are by no means prepared to commend its adoption, or convinced that it will meet with the approval of those men who work in the same field as Dr. Harris, or, perhaps, of those members of the profession who are disinclined to open new roads, which may enable non-medical persons to further invade provinces which have been assigned to the registered medical practitioner.

Already electro-therapeutics have in a large measure passed out of the hands of the latter, and into those of persons who were originally equipped to practise under his supervision, but such an understanding is no longer recognized, and in many instances we now find that the clients of the non-medical electro-therapeutist are more numerous than are those of the physician or surgeon. It is, you say, proposed in the case of the new creation—the expert nurse—to impose limitations to her understanding, that she is to take radiograms but not interpret their meaning. How is this to be accomplished? How is she to judge of the value of the picture for which she is responsible if she is unable to interpret its details—how impart the necessary information to her medical pupils if definitions have no significance for her? An essential to achieve radiographic results, which may be taken as reliable, is the ability to appreciate details and definitions; in the absence of such, radiograms as surgical guides must prove dangerous, hence, Sir, the new teacher must be manufactured to answer requirements, she must interpret her work, and no limitations can be placed to her understanding in this direction, and once she has advanced so far, there is no means of regulating her future methods and ways.

It is not so very long ago that Dr. Harris very forcibly warned the members of his profession against the sin of extending recognition to other than medical radiologists. At that period he was rigidly conservative, and appealed to his brethren to share and uphold its views. What developments have come along to alter his viewpoint so very completely? He is now prepared to advocate the introduction of competitors (it does not require a prophetic spirit to anticipate with surety that they will become such) into the regions which he formerly so jealously guarded against intrusion. Let us suppose that the principle finds application in other departments of medicine—and why should it not?—we shall have the expert nurse holding classes for tuition throughout the country, and of a certainty the possibilities for future genera-

tions of medical men shall become unpleasantly circumscribed.

During the past twelve years I have been engaged in X-ray work, and in that time I have made several journeys to Melbourne and Sydney, in order to observe new methods and devices. Is it too much to expect of the country practitioner that he make one such excursion, and acquire from members of his profession the knowledge he seeks?

To me it appears that those who gave but a lukewarm reception to the proposed innovation acted discreetly; its emphatic rejection will, I trust, come later.

Yours, etc.,
A. A. DOYLE, F.R.C.S.I.,
Honorary Medical Radiologist, Brisbane Hospital.

August 2, 1918.

Births, Marriages and Deaths.

The charge for inserting announcements of Births, Marriages and Deaths is 5s., which sum should be forwarded in money orders or stamps, with the notice, to arrive not later than Tuesday morning in order to ensure insertion in the current issue.

DEATH.

KENNEDY.—Killed in action on April 17, 1917, Ronald Sinclair Kennedy, M.C., M.D., Camb., Captain, R.A.M.C., attached South Lancashires, only son of John W. Kennedy, F.R.C.S.I., etc., 211 Macquarie Street, Sydney.

A Congress on Diseases of the Eye, Ear, Nose and Throat will be held in Melbourne on October 30 and 31 and November 1, 1918. Dr. F. Antill Pockley will be President of the Eye Section and Dr. A. J. Brady President of the Ear, Nose and Throat Section. All those desirous of taking part are invited to communicate with Dr. M. Lynch, Collins Street, Melbourne.

Medical Appointments.

It is announced in the *Tasmanian Government Gazette* of July 30, 1918, that Dr. Robert Gillespie Scott (B.M.A.) has been appointed President of the Medical Council of Tasmania, and that Dr. Ernest Thorburn Macgowan has been appointed a member of the same body.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United Friendly Society Institute. Townsville Friendly Societies' Medical Union. Cloncurry Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 8 North Terrace, Adelaide.)	Contract Practice Appointments in South Australia. Contract Practice, Appointments at Renmark.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Aug. 13.—Tas. Branch, B.M.A., Council and Branch.
Aug. 13.—N.S.W. Branch, B.M.A., Ethics Committee.
Aug. 14.—North Eastern Med. Assoc. (N.S.W.).
Aug. 15.—Vic. Branch, B.M.A., Council.
Aug. 15.—City Med. Assoc. (N.S.W.).
Aug. 16.—Central Southern Med. Assoc. (N.S.W.), (Yass).
Aug. 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Aug. 21.—W. Aust. Branch, B.M.A.
Aug. 23.—Q. Branch, B.M.A., Council.
Aug. 27.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Aug. 28.—Vic. Branch, B.M.A., Council.
Aug. 29.—S. Aust. Branch, B.M.A.
Aug. 30.—N.S.W. Branch, B.M.A.
Sept. 4.—Vic. Branch, B.M.A.
Sept. 6.—Q. Branch, B.M.A.
Sept. 10.—Tas. Branch, B.M.A., Council and Branch.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.

The Honorary Librarian of the New South Wales Branch of the British Medical Association is anxious to complete the series of the *Lancet* at present in the Library of the Branch. The issues of January 4 and 25, March 14 and August 15, 1908, and January 9, 1909, are needed for this purpose. The Librarian will be grateful if any member who is able to present to the Library one or more of these numbers, will communicate with the Honorary Secretary of the Branch, Dr. R. H. Todd, B.M.A. Building, 30-34 Elizabeth Street, Sydney.